Manual

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Service Development Guide

Description

This document describes how to install and configure Content Gateway software.

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Sonera

Manual

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1 Introduction

Content Gateway is a service platform that enables content providers, service providers and companies to send and receive SMS and MMS messages between IT systems and mobile terminals. In order to use Content Gateway, you need to install the Content Gateway provider software package.

1.1 Release Notes for Version 4.0

- New web-based Provider Admin tool which replaces the Remote Control.
- Simplified session types that also manage all the functions of the old session types. The supported session types are a) Send Only, b) Receive Only, c) Query/reply and d) Push.
- Updated versions of the APIs, documentation and applications.
- In the new version service providers are able to set a price for their services.

Platform Components

The Content Gateway platform consists of the following components:

- Operator Server located on the operator's infrastructure.
- Provider Server on your company's network.
- Provider Admin for configuring your applications and Provider Server.
- Applications that provide content and services to end-users.

The following figure illustrates the Content Gateway platform.

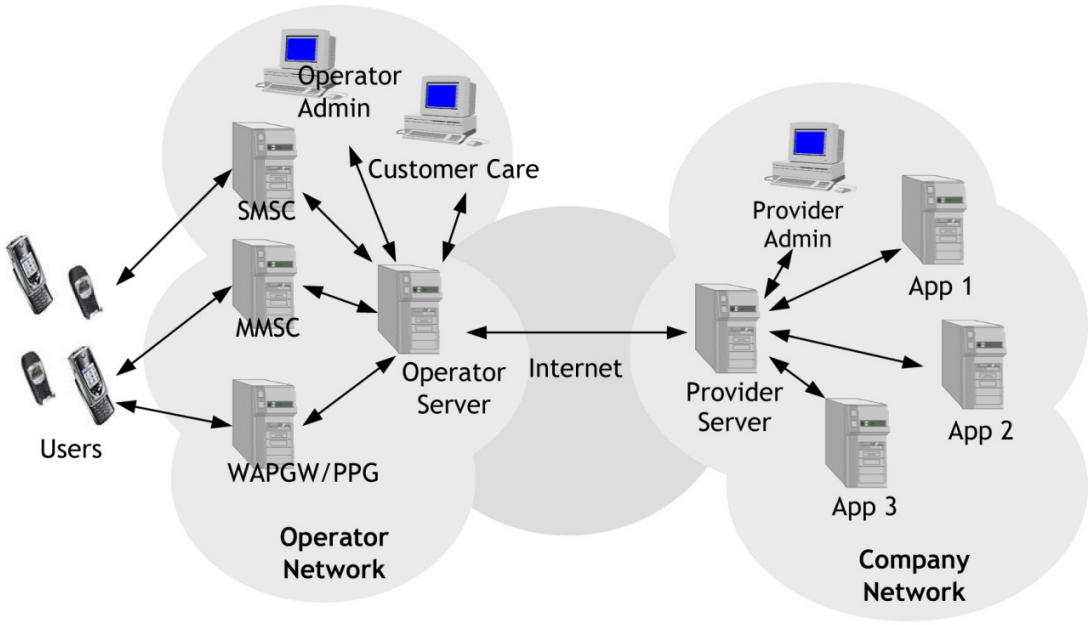


Figure 1. The Content Gateway Platform

1.1 Operator Server

Operator Server is run on your operator's infrastructure. It routes messages sent from your applications to the Messaging System (MMSC, SMSC). It also routes messages sent to your Short Number to your Provider Server and applications. You can find Operator Server's address by contacting your local Content Gateway operator.

Operator Server encrypts all traffic between Provider Server and Operator Server. In addition, each provider is authenticated by the system. The messages are transmitted via the Internet using the TCP/IP protocol.

Operator Server hides the protocol that the mobile network uses as well as possible changes in the protocol (except tunneling protocols). When the operator introduces a new or updates an existing Messaging System, you do not need to reconfigure your services and applications. In

addition, you do not need to know which physical message center is being used or the technical details and complexities of the mobile network.

1.1.1 Main Functionalities

Operator Server manages the following functions:

- Identifies Provider Server when Provider Server opens a connection to Operator Server. Then Operator Server encrypts all connections to Provider Server.
- Routes messages between Provider Server and the mobile network.
- Sends delivery notifications and error messages to Provider Server. Provider Server then routes the messages and notifications to the application sending the original message.
- Identifies the requested recipient (Provider Server) and the service (the application) in incoming messages. It then routes the message to Provider Server, which routes the message to the application.
- Checks that the sender of an incoming message has access rights to the requested service. Operator Server enables restrictions based on MSISDN and service identification.
- Checks that the recipient of an outgoing message has access rights to the service.
- Controls and manages the company and content/service provider information that is needed for Content Gateway connections.
- Controls and manages sessions.
- Collects data from the logs and creates event statistics.
- Collects data for billing the user and the provider, and for revenue sharing. Creates billing data for the operator's billing system.

1.2 Provider Server

Provider Server is run on your company's network. Your applications interface with Provider Server when they send or receive messages. Provider Server routes outgoing messages to Operator Server, and incoming messages to your applications. When Provider Server opens a connection to the operator, it identifies Operator Server. After that Provider Server encrypts all connections to Operator Server.

If you have one Short Number for your services, you can have only one connection from Provider Server to Operator Server. If you have more than one Short Numbers, you can route

all incoming messages to separate Provider Servers or to one particular Provider Server. With one license, you can use only one Provider Server but several Short Numbers. If you wish to use more than one Provider Server, you need separate licenses for all Provider Servers that connect to Operator Server. However, it is always best to create the service structure in such a way that you need only one Provider Server.

1.2.1 Main Functionalities

Provider Server manages the following functions:

- Routes outgoing messages from the applications to Operator Server.
- Routes incoming messages from Operator Server to the applications.
- Identifies Operator Server when opening the connection to the operator.
- Encrypts all connections to Operator Server.

Service applications may access Provider Server through one of the following communication interfaces:

- EMI (tunneling)
- SMPP (tunneling)
- HTTP (tunneling) and MMS tunneling (on top of HTTP)
- SMTP
- OTP
- CGW, CGW3
- Java API (on top of OTP)
- C++ API (on top of CGW, CGW3)
- ActiveX

1.3 Provider Admin

Provider Admin is a web-based interface used for managing service settings in Content Gateway. Provider Admin supports all standard HTTP 1.1 compliant web browsers and can be used from any machine having access to the Provider Server machine.

1.3.1 Main functionalities

You can use Provider Admin for the following tasks:

- Configuring Provider Server.
- Configuring the service settings.
- Configuring the service identification settings.
- Defining access rights (whitelist).
- Checking connections (Inbound/outbound queues).
- Defining user aliases and user groups.

2 Short installation Guide

2.1 Download the latest version of the software from Sonera's web page

The latest version of the software and the programming interface are available on Sonera's Internet page at the address: http://www.sonera.fi/contentgateway .

You can download versions for the following 32 bit operating systems from the page:

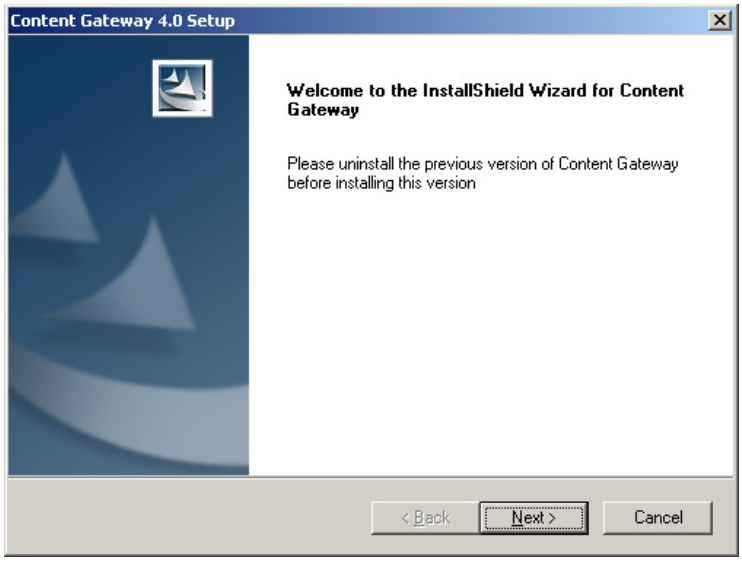
- Windows
- Linux
- HP-UX
- Solaris

2.2 Install the software

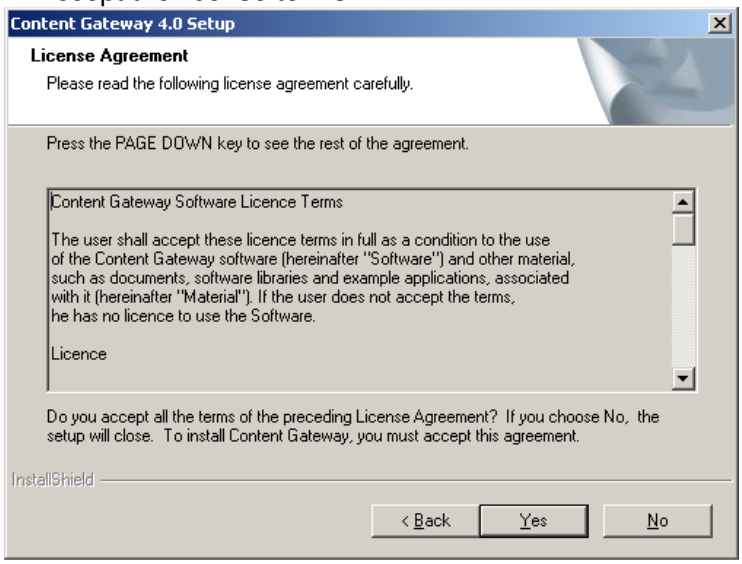
2.2.1 Windows installation

For a server installation, a supported workstation or server is needed, with 10 MB of free disc space. The Windows installation program is cgwsetup.exe.

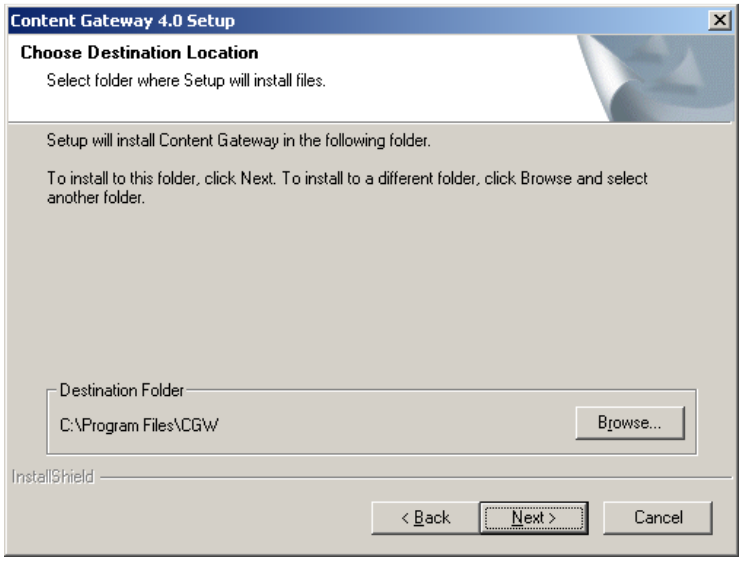
1. If you chose installation method 1), delete the old CGW version prior to installing the new version. Make a backup copy of the configuration files and licence file (*.cnf, *.lic) before updating.
2. Start the installation program cgwsetup.exe.


Content Gateway 4.0 Setup
Welcome to the InstallShield Wizard for Content Gateway
Please uninstall the previous version of Content Gateway before installing this version
< Back
Next >
Cancel

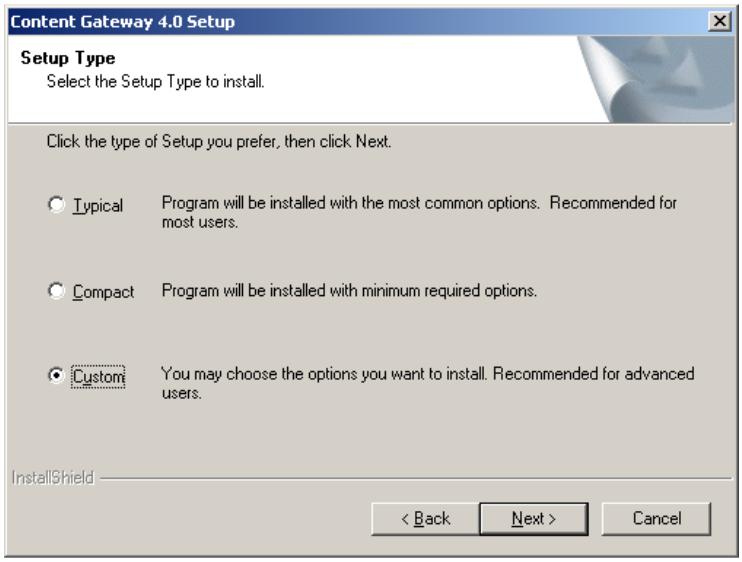
2. Accept the license terms.


Content Gateway 4.0 Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
Content Gateway Software Licence Terms
The user shall accept these licence terms in full as a condition to the use of the Content Gateway software (hereinafter "Software") and other material, such as documents, software libraries and example applications, associated with it (hereinafter "Material"). If the user does not accept the terms, he has no licence to use the Software.
Licence
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install Content Gateway, you must accept this agreement.
InstallShield
< Back
Yes
No

3. Choose the directory where the software is to be installed.

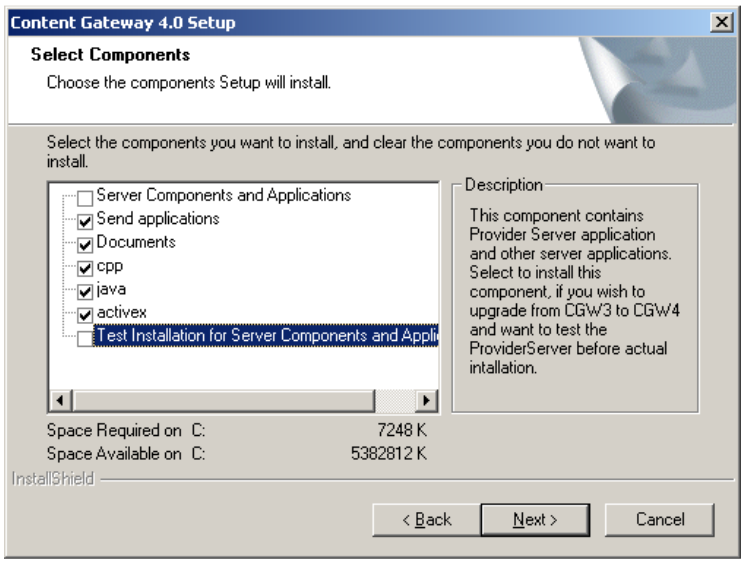

Content Gateway 4.0 Setup
Choose Destination Location
Select folder where Setup will install files.
Setup will install Content Gateway in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\CGW
Browse...
InstallShield
< Back
Next >
Cancel

4. Select the installation type.
   - The Typical installation will install all the pieces of software. Use this if there is no particular reason to use the other installation options.
   - The Compact installation will only install the Provider Server software.
   - The Custom installation allows you to choose which pieces of software are to be installed.

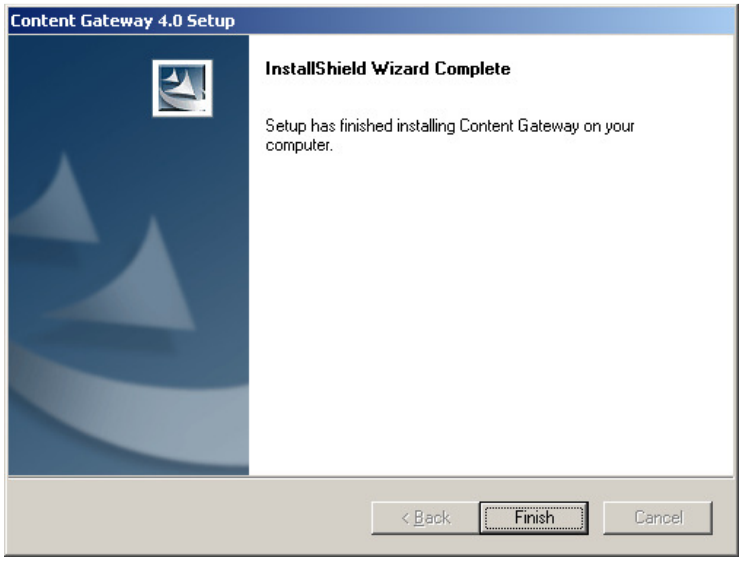

Content Gateway 4.0 Setup
Setup Type
Select the Setup Type to install.
Click the type of Setup you prefer, then click Next.
Typical
Program will be installed with the most common options. Recommended for most users.
Compact
Program will be installed with minimum required options.
Custom
You may choose the options you want to install. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

4a. If you selected the Custom installation, select the components to be installed.

- Test Installation for Server Components and Applications installs the Provider Server software and example applications normally. Select this, if you want to test the CGW4.0 version along with the old version on the same computer. Please note that the installation affects the port numbers the system uses. For example, the Admin port is 50081. Check the port numbers in the provider.cnf file of the installation directory.
- Server Components and Applications installs the Provider Server software and example applications normally.
- Send applications installs the SMS sending programs. Use this installation when you install the software on a computer from which SMS messages are sent, only, through a Provider Server computer.
- Documents installs the documentation in the Adobe Acrobat format.
- cpp installs the C++ libraries and example programs.
- java installs the Java libraries and example programs.
- activex installs the ActiveX component.


Content Gateway 4.0 Setup
Select Components
Choose the components Setup will install.
Select the components you want to install, and clear the components you do not want to install.
Server Components and Applications
Send applications
Documents
cpp
java
activex
Test Installation for Server Components and Appli
Description
This component contains Provider Server application and other server applications. Select to install this component, if you wish to upgrade from CGW3 to CGW4 and want to test the ProviderServer before actual intallation.
Space Required on C: 7248 K
Space Available on C: 5382812 K
InstallShield
< Back
Next >
Cancel

5. The installation is complete. If the software does not start immediately, re-start the computer. The Content Gateway Windows Service (in other words, the ProviderServer.exe program) starts by default as the computer is started.



If Content Gateway does not install as Windows Service (in other words, it cannot be found with the Services management tool in Control Panel), this is what to do:

- Open the command line interpreter
- Go to the CGW4.0 installation directory
- Enter the commands:
  - `providerserver install`
  - `net start providerserver`

2.2.2 HP-UX/Linux/SunOS installation

For a server installation, a Linux, HP-UX, or SunOS computer is needed with approximately 10 MB of free disc space.

There is no installation program for the HP-UX/Linux/Sun version. The programs are in gzip compressed tar files (cgw40_hpux1020.tar.gz, cgw40_hpux1100.tar.gz, cgw40_sunos.tar.gz, cgw40_linux.tar.gz). This instruction describes the Linux installation, but the other installations take place in the similar manner:

1. Make an installation directory and possibly a user ID of your own for cgw. For example:

```
mkdir /home/cgw40
cd /home/cgw40
```

2. Unzip the files from the tar archive. Please note that if you are updating the software, it is worthwhile to copy all the configuration files (*.lic, *.cnf) in a safe place before the update and restore them to the original directory after the update.

```
gunzip cgw40_linux.tar.gz

tar xvf cgw40_linux.tar
```

3. If you install CGW 4.0 beside the old CGW version, remember to change the port numbers in the provider.cnf file to ones that are not used by the old CGW. After the test, remember to delete the activation of the old CGW and set the crypted-port of the new version into the same value as that used by the old CGW.

4. Start Provider Server

```
ProviderServer provider.cnf &
```

5. Add the activation of the Provider Server program to the computer start scripts. This phase is not obligatory, but without it Provider Server will not start automatically as the computer starts.
The correct script depends on the operating system. Check the manual page, for example, "man rc", "man rc.config". In Linux, for example, you can perform automatic start like this:

- In the /home/cgw directory, make the script "start", with the following contents:

```
nohup ProviderServer provider.cnf &
```

- In the /etc/rc.d/rc.local file, add the line (the assumption here is that ProviderServer is run with the cgw user ID):

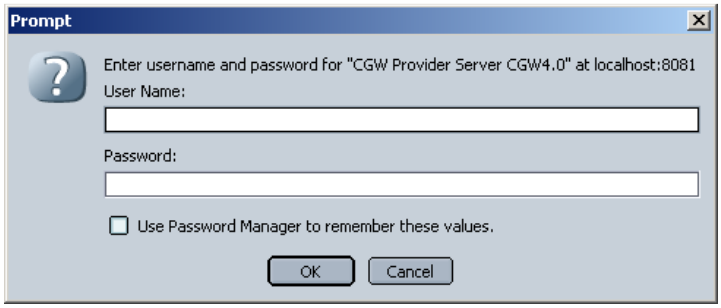
```
su cgw -c /home/cgw/start
```

2.3 Use WWW browser to connect to CGW4

When the new Provider Server program is running, set up a connection to the maintenance user interface. By default, the maintenance user interface is at port number 8081.
For example, if the Provider Server computer has the address sms.company.com, the URL to the admin user interface with the default settings is http://sms.company.com:8081. If you are at the same computer as Provider Server, the URL http://localhost:8081 will also work.

NOTE: If you selected the test installation in the software Windows installation, the port number is 50081. So, the URL in that case is, for example, http://localhost:50081.

If you entered the URL correctly, the browser will ask for the user ID and password of the CGW Provider Server:



At the time you log in for the first time, you can enter any user ID and password.

> *NOTE:* The password that you give when you first log in will be stored in the user register of the system only for the period that the Provider Server software is running. Later on, you will need to use the exact same password as in the first log-in before you change it.

If the correct page does not appear, test the operation of the CGW

TIP: If port 8081 is reserved, change the port number of the admin port in the provider.cnf file and restart the Provider Server program.

```
http-admin-port 8081
```

TIP: If you forget the user ID/password, close Provider Server and edit the auth.cnf file so that you enter the password in it in plain language. For example, if the line in the auth.cnf file is:

```
peter =nXffxgffgHi5PyFXXuBXrx== admin
```

and you wish to set the password to "abc123", change the line as follows:

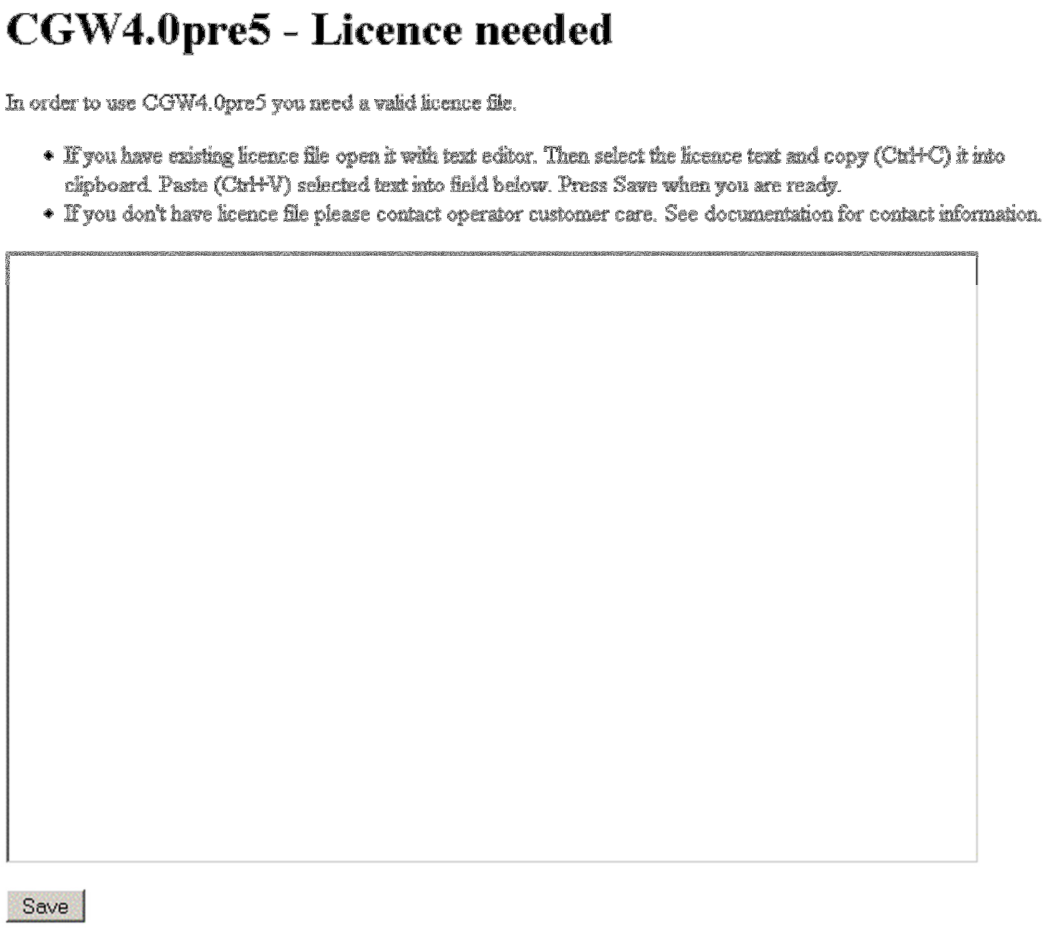
```
peter abc123 admin
```

Restart Provider Server after the change.

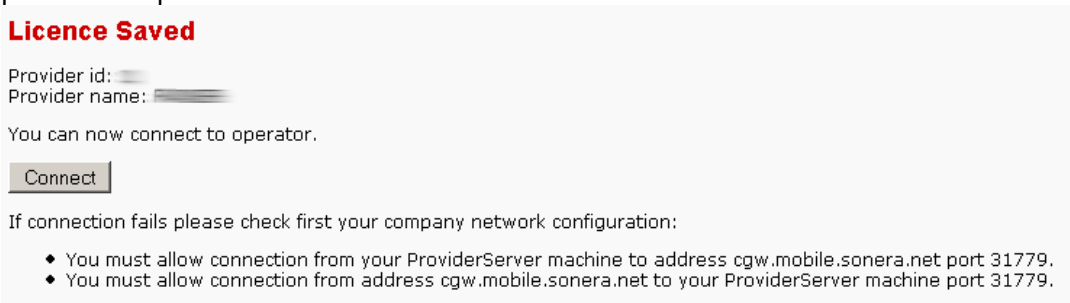
2.4 Install licence

The licence file is delivered by e-mail after the service agreement with Sonera has been concluded. The licence file needs to be installed before messages can be sent to a phone or received from a phone. If you are updating an old version of CGW into the CGW4 version, you do not need a new licence but can use the old licence.

When the log-in is successful, the system will ask for the licence if it has not yet been configured for it:


CGW4.0pre5 - Licence needed
In order to use CGW4.0pre5 you need a valid licence file.
If you have existing licence file open it with text editor. Then select the licence text and copy (Ctrl+C) it into clipboard. Paste (Ctrl+V) selected text into field below. Press Save when you are ready.
If you don't have licence file please contact operator customer care. See documentation for contact information.
Save

Open the licence file in any text editor and copy the entire text of the licence into the clipboard. Then, paste the copied text into a blank field and save the licence.


Licence Saved
Provider id:
Provider name:
You can now connect to operator.
Connect
If connection fails please check first your company network configuration:
You must allow connection from your ProviderServer machine to address cgw.mobile.sonera.net port 31779.
You must allow connection from address cgw.mobile.sonera.net to your ProviderServer machine port 31779.

Then click on the Connect button. If the connection is not established after the pressing of Connect, check the connection.

2.5 Configure the users, user groups and passwords of the maintenance user interface

The user configuration page can be displayed through the "User Authentication" link on the admin pages. You can do this before the services are transferred, too.

It is most recommended that each user in CGW 4.0 have their own personal user ID and password. The users belong to two groups:

1) a user belonging to the admin group has full rights to modify the settings and service information of Provider Server.
2) those belonging to the user group can modify the configuration of services and end-user prices.

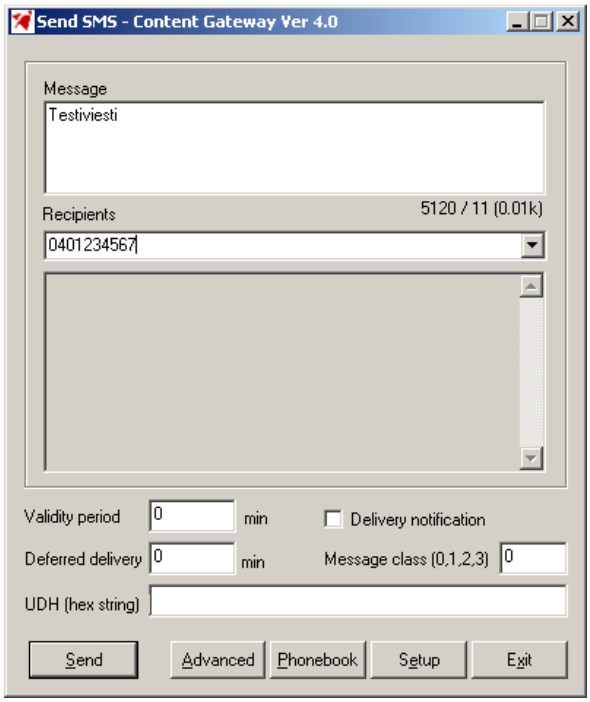
2.6 Test the operation of the system and connections

To make sure that the connection configurations are definitely correct, it is worthwhile to carry out the test described in this chapter. The most typical reason for system failures is connection problems. It is worthwhile to carry out these tests only with the final production system.

2.6.1 Test sending a message to a mobile phone

Send a message to your subscription with the Wsend or send program.
As follows with the Send program:

enter> send –s12345 –r0401234567 –hlocalhost –m Text message
SENT: 0401234567 Delivered to the SMSC or with the Wsend program:



Before sending, remember to set the sender's number and the address of the Provider Server computer on the Setup screen of the Wsend program.

Sending works correctly if the message is received on your phone. The Send program can be found in the installation directory of the CGW software. If you test sending with another computer than the one that has the Provider Server software, replace "localhost" with the address of the Provider Server computer.

2.6.2 Test receiving a message on a phone

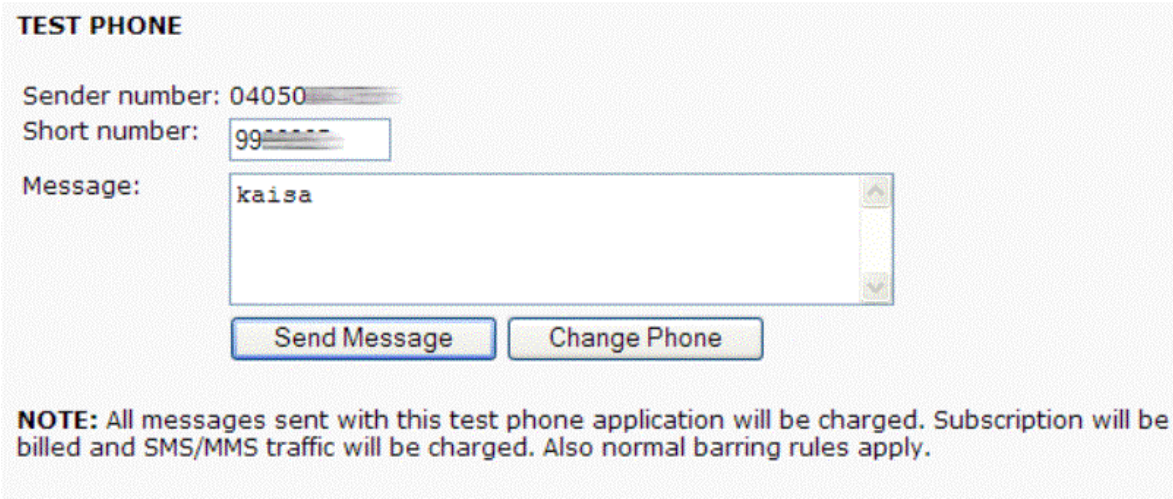
Log in the ProviderServer computer with a Web browser. Alternatively, you can check the test result directly in the log files. Also start the application with which you wish to test the operation.
Please note that before the tests, you need to define a service to receive the messages on the Admin website. The simplest way is to set up a Receive Only service, which saves the received messages in a text file. The following settings, for example, are enough for receiving messages:

Name	Test
Short number	<short number to be tested>
Service keyword	<leave blank>
Application URI	file://received.txt

Use the Web Admin user interface to view the logs. Note that the log page is not automatically updated, but you need to click on the Log link again until the event is shown on the log page.
After this, send a message that has a search word configured for the service to the short number of the service, and wait for the service to reply.
If the phone show the error message "Service is temporarily out of use. Try again later." and the Log screen of the Web Admin program shows nothing, the connection has problems. In all likelihood, your company's firewall prevents the connection. See chapter 5 (Firewall and connection settings).
If, on the other hand, the Log screen displays communications, the connection to the operator is in order, but either the service or the routing configuration of the message has problems.
If the phone receives the error message "Service was not identified. Check that the short number and search word are correct", the configuration of the services is not correct or you sent a wrong search word. Check both cases.

2.6.3 Test phone

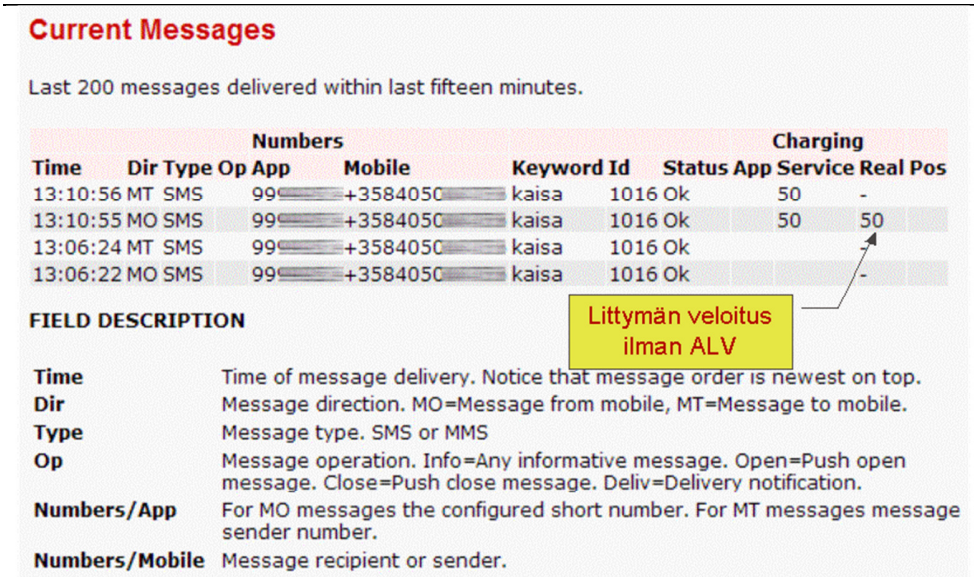
To test the services, you can use the Test phone application. Contrary to the previous version, Test phone works through the Admin web pages. Test phone is meant to facilitate sending test SMS messages. The reply messages are sent to a real phone. An SMS message sent from Test phone cannot be distinguished in any way from a message sent from a real phone. That is why before you can use the Test phone application, the subscription number used on it is secured by a PIN code sent to the real phone.


TEST PHONE
Sender number: 04050
Short number:
Message:
kaisa
Send Message
Change Phone
NOTE: All messages sent with this test phone application will be charged. Subscription will be billed and SMS/MMS traffic will be charged. Also normal barring rules apply.

2.6.4 Current Messages report

The Current Messages report show the messages processed during the previous fifteen minutes, their status and end-customer charging. The description of the fields is shown on the report page.

NOTE: The page shows no more than 200 latest events.
NOTE: The Current messages report only provides indicative information on the success of invoicing which can factually only be checked with Sonera's invoicing system or on the end-user's invoice.


Current Messages
Last 200 messages delivered within last fifteen minutes.
Numbers
Charging
Time Dir Type Op App Mobile Keyword Id Status App Service Real Pos
13:10:56 MT SMS 99 +358405 kaisa 1016 Ok 50 -
13:10:55 MO SMS 99 +358405 kaisa 1016 Ok 50 50
13:06:24 MT SMS 99 +358405 kaisa 1016 Ok
13:06:22 MO SMS 99 +358405 kaisa 1016 Ok -
Littymän veloitus ilman ALV
FIELD DESCRIPTION
Time Time of message delivery. Notice that message order is newest on top.
Dir Message direction. MO=Message from mobile, MT=Message to mobile.
Type Message type. SMS or MMS
Op Message operation. Info=Any informative message. Open=Push open message. Close=Push close message. Deliv=Delivery notification.
Numbers/App For MO messages the configured short number. For MT messages message sender number.
Numbers/Mobile Message recipient or sender.

2.6.5 Test the firewalls and connection configurations

If a firewall prevents a connection to the Provider Server of your company from Sonera, the services will probably not work correctly after connection interruptions, nor will it be possible to deliver messages sent from a phone.
First of all: close the Provider Server program and restart it (in the Windows environment, for example, by the commands net stop providerserver and net start providerserver, in Unix environments kill the program by the kill command and restart it).

Then repeat the test, but do not contact Provider Server before you send a test message.
If an error is displayed on the Web Admin page, test that at least the connection to Sonera is working:

Make sure that the name service of the Provider Server computer is working correctly.

```
enter> nslookup cgw.mobile.sonera.net
       Name:    cgw.mobile.sonera.net
       Address:  195.156.25.22
```

If the name service is not in order, there are three options to fix it:
Repair the name service.
In the hosts file of the computer, add line
195.156.25.22 cgw.mobile.sonera.net
Or edit the licence file provider.lic so that you replace the line:
operator-server cgw.mobile.sonera.net
with the line:
operator-server 195.156.25.22
Restart Provider Server after this.

Make sure the connection to Sonera is working properly. Typically, the company's firewall is open so that the connection is working properly. In some cases, the connections outward have been blocked. Test the connection with, for example, the telnet program as follows:

enter> telnet cgw.mobile.sonera.net 31779

If everything is working correctly, the connection will be established, but it immediately breaks as you enter something in the telnet window. If the connection is not established by telnet, the problem is fixed by opening the company's firewall. If Datanet is in use, check that the interconnection traffic opening has been done correctly. Sonera's firewall at the address cgw.mobile.sonera.net, port 31779 is open.

3 Service Development Process

The service development process can be summarized with following figure:

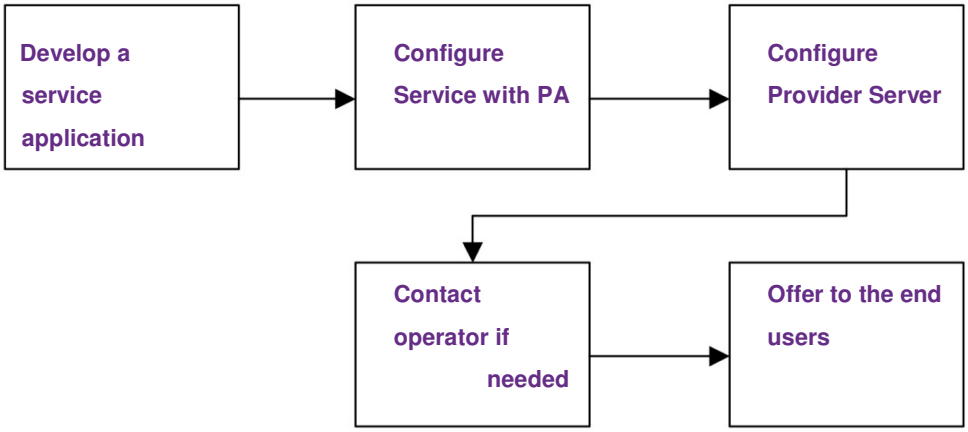

Develop a service application
Configure Service with PA
Configure Provider Server
Contact operator if needed
Offer to the end users

Figure 2. The Service Development Process

1. Develop a new service application or modify an existing one. You can use the existing applications through APIs.

2. Configure the new service into Provider Server with the Provider Admin web tool.

3. Before you can use the service application in the Content Gateway platform, you need to configure the required parameters to Provider Server. Configuring needs to be done if you have, for example, applied new protocols.

4. You can test the service application with Test Phone. Test Phone can be used only with test license. If your Provider Server is already connected to the live network (with live license), you can for example install another PS in order to test your services with the Test Phone.

5. If your service requires special parameters, such as a special price, you need to make an agreement with the operator. Also, if you need to use a protocol you have not used before, you need to check that you have the ability to use it (i.e. you have the required connections to the network). You may need to acquire a new licence.

6. Now you can start to offer your service to the end users.

NOTE ***You need to have a license to the live network before you can configure both services and Provider Server with Provider Admin. You can find out more about acquiring license from Installation Guide.***

4 Service Configuration and Provider Server Administration

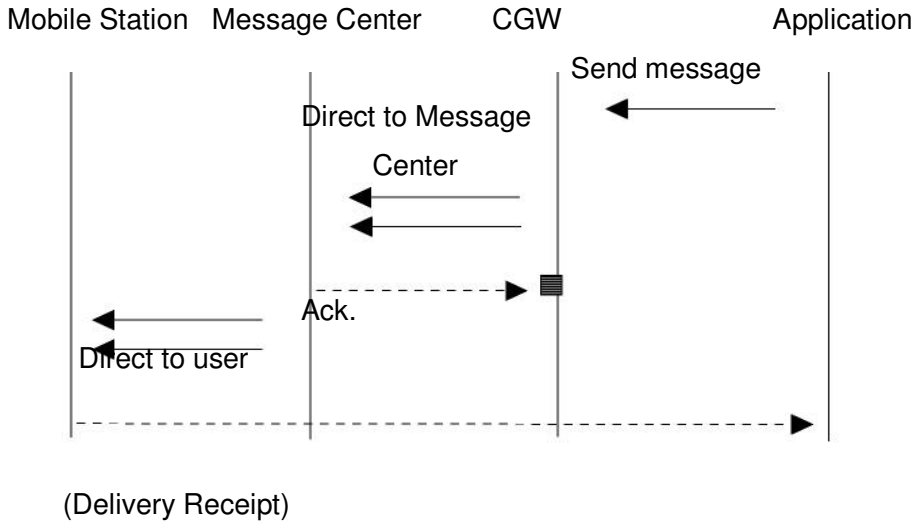
4.1 Service Types

A service type specifies how sessions are controlled in the service. The service type is significant for billing: using a wrong service type can cause either a mobile user not to be billed at all or unnecessary billing. A session is a set of messages that forms a logical service transaction. For instance, a ringing tone typically consists of 1 MO (Mobile Originated) and 3 MT (Mobile Terminated) messages, totaling 4 messages for a service transaction. The session begins when the first message arrives to Content Gateway. The session ends automatically when the preset timeout is reached or when the application ends the session.

4.1.1 Send Only

An application sends the message to a mobile terminal, but does not expect an answer. The session ends automatically when the SMSC receives the message or when the message has been received in the mobile terminal (if delivery notification is used). You can limit the use of the Send Only service by giving access rights only to certain users.

Send Only



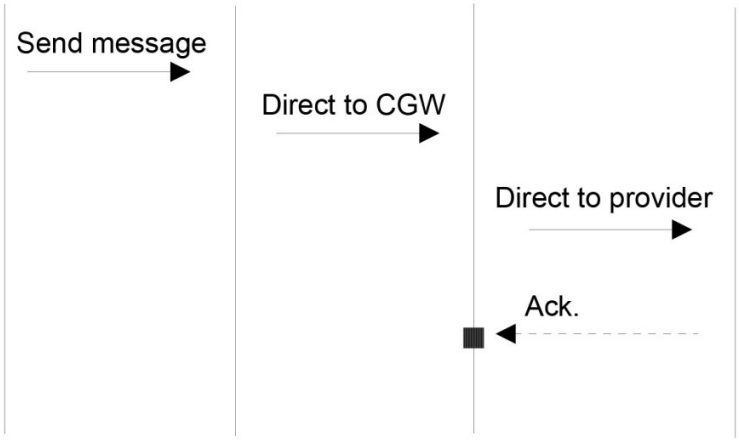
NOTE ***In case of an error situation, you can send an error message to the user with the HTTP protocol.***

4.1.2 Receive Only

The session consists of one message. A mobile terminal sends the message to the application, but does not expect an answer. The session ends when the application receives the message and no confirmation is sent to the subscriber.

Receive Only

Mobile Station Message Center CGW Application

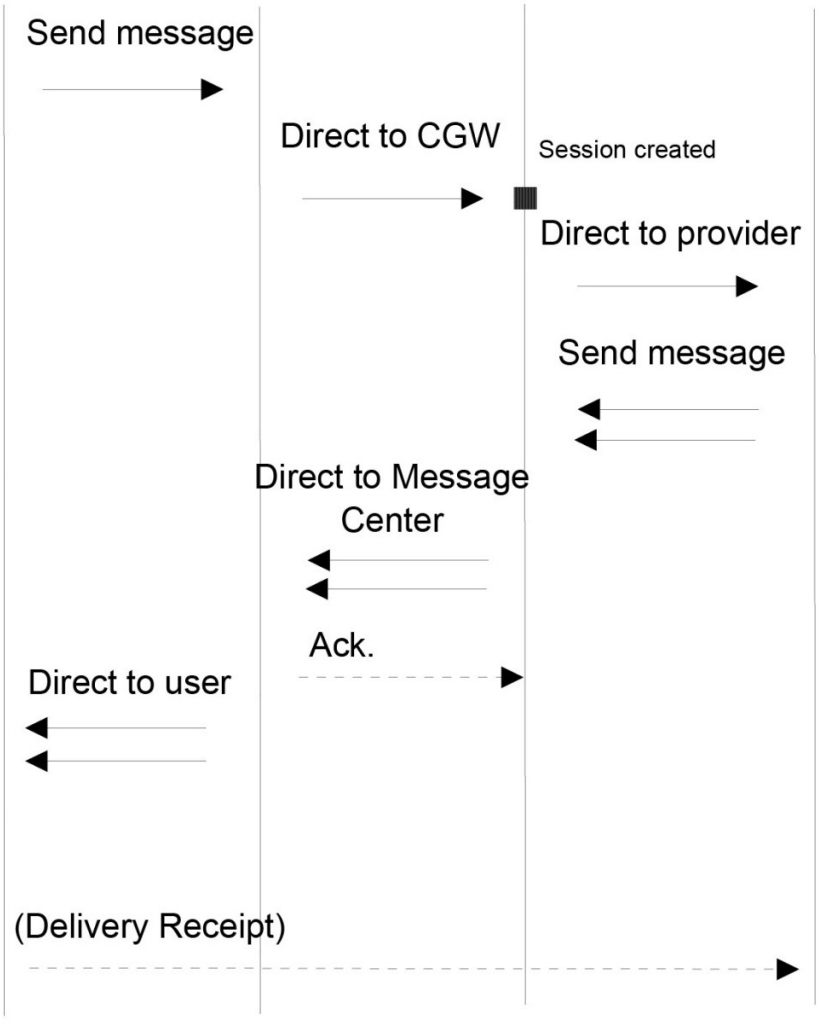


4.1.3 Query/Reply

The Query/reply type is for services that are initiated by the user sending an MO message (query), and the query is replied with one or more MT messages. The session is created upon each MO message.

Query/Reply

Mobile Station Message Center CGW Application



4.1.4 Push

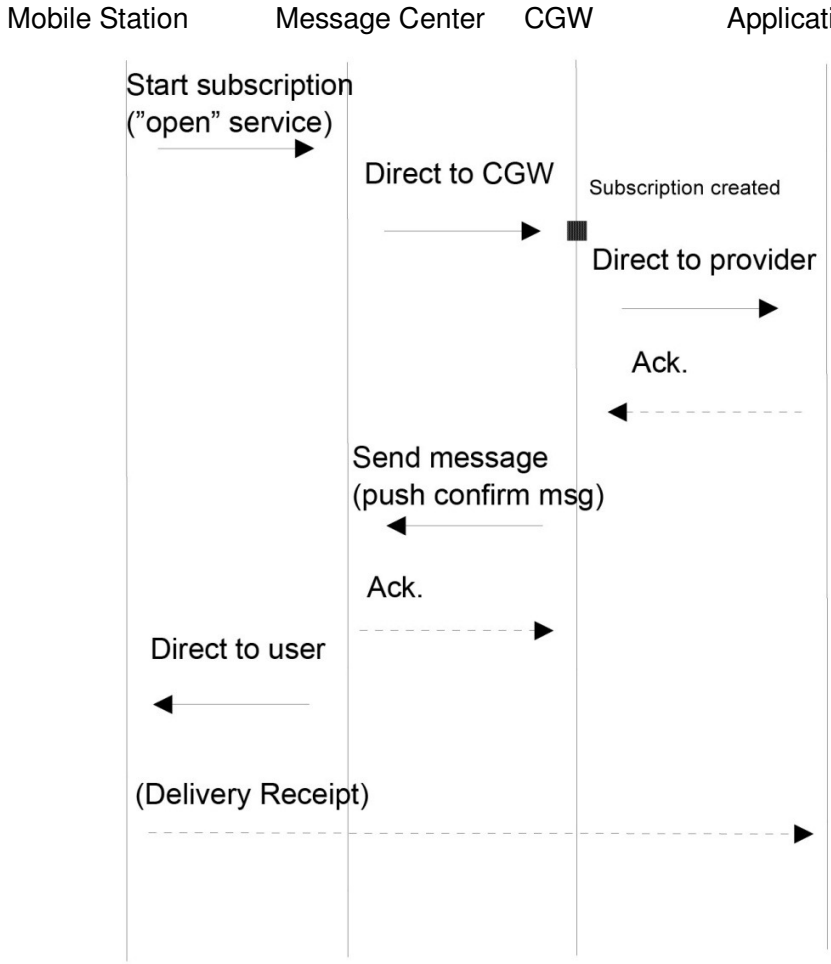
Push is a part of Content Gateway that is used to provide push services. In Push services, the service messages are sent from the application to users. The Push service type differs from the other CGW service types as follows:

- Push requires that the end user subscribe the service from the Service Provider. This is done in order to get permission for charging the end user.
- The service provider delivers content to active push subscribers when needed.
- The end user ends the subscription if he/she does not want to receive the content anymore.

Push services are configured through Provider Admin as any other service.

The user subscribes the service by sending an MO message to content/service provider through the Content Gateway. After the subscription, the user receives MT messages from the application. Service application sends the content as a separate message to the end users. The user can close the subscription by sending an MO message to content/service provider. Information about the subscribers is maintained in Content Gateway. Internal bookkeeping allows charging the user for the Push services, i.e. for MT messaging.

Push ("subscribe")

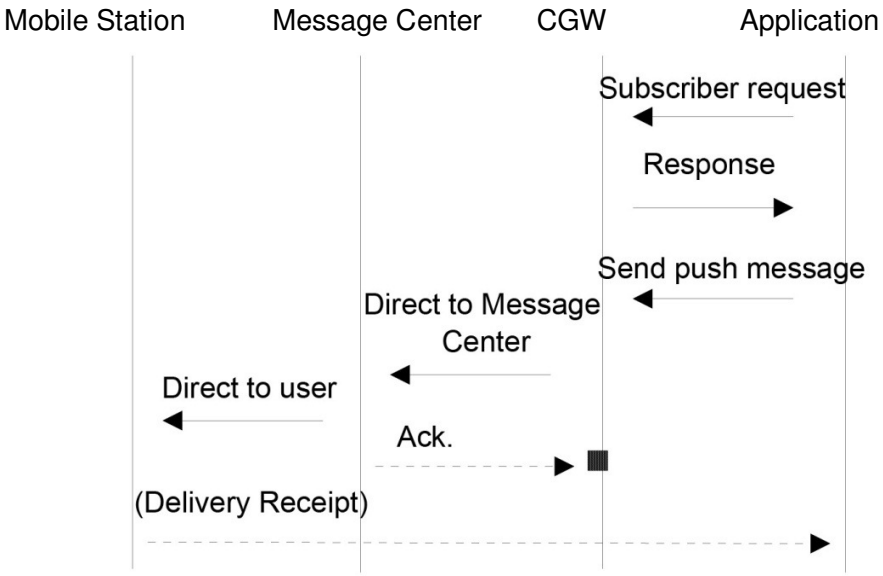


1. The end user subscribes a push service by sending a SMS to CGW. The service is identified like any other MO (Mobile Originated) message. CGW saves the user's subscription internally and informs the end user about a successful subscription. The message that will be sent to the end user is defined when configuring the Push service. If the push notification message is not configured, CGW will not send any message to the end user. This scenario can be used if the service provider wishes to send its own push

notification message. Note that in this case a different service (send only) must be used to send the push notification message to the end user.

2. The push service subscription becomes active after 5–10 minutes. This gives the user a chance to unsubscribe the service without having to pay for the content.

Push (send)



3. Before delivering the content, CGW checks the end users that have an active subscription. This can done with http request and it returns a list of active end users for defined service. (Using the http request is defined later in the chapter)

4. Push content is delivered to the end user like any other MT (Mobile Terminated) message. It is not possible to send a Push message for multiple recipients. At the moment, there must be a separate message for each subscriber. When trying to send a Push message to multiple recipients, CGW does not send the message and returns an error message: "*Too many recipients*". The message is send to each recipient defined in the above-mentioned HTTP request list.

5. The operator specifies a daily limit for the number of Push messages that the end user can receive. When sending a Push message to an end user who has already reached his/her daily limit, CGW does not send the message and returns an error message "*Passive user. Daily limit reached*". Otherwise, CGW handles the message similarly as other MT messages (for example, barring check and whitelist check) and sends the message.

Using the http request to find out the push subscriptions

Sometimes provider or service application needs to know who have subscribed a push service. A list of service subscribers can be requested through Provider Server using http protocol. Provider can issue the request from web browser, or service application can send the request using its own http implementation. The format of the subscriber query URL is the following:

http://<address>:<port>/cgw-pa/cgw/push_orders.jsp?
service_id=<id>&status=<s>&format=<f>

- Address is the IP address of the Provider Server.
- Port is the http port of Provider Server. Note: this is different than Provider Server admin port.
- Parameter service_id is the id of the push service to request. Parameter is mandatory.
- Parameter status defines states of users to return. Possible values are:
  - *act*, which returns only active users
  - *pas*, which returns only passive users
  - *all*, which returns both active and passive users

Parameter is optional. If omitted, returns active users.

- Parameter format defines in which format the result is returned. Possible values are:
  - *text*, which returns the list in plain text format. This format does not contain any additional tags, and is easy to use by applications.
  - *html*, which returns the list in html format. This format contains html tags in the text, and can be viewed better in browser.

Parameter is optional. If omitted, returns using html format.

For example, to request all users who have subscribed push service 123, returning the result in html format, use the following URL:

http://localhost:8080/cgw-pa/cgw/push_orders.jsp?service_id=123

The result of the above query might look the following on the browser window:

push service subscribers

service id: 0123

time: 2003-10-14 14:03:50

+358401234567 ACT

+358401234568 ACT

+358401234569 ACT

+358401234570 ACT

+358401234571 ACT

+358401234572 ACT

The result list has always the three comment lines in the beginning. The first line is the name of the report. The second line is the id of the requested push service. The third line is timestamp. All the lines from that on, contain first the subscriber phone number, then the status of the user (act or pas).

If no subscriptions were found, the result is the following:

push service subscribers

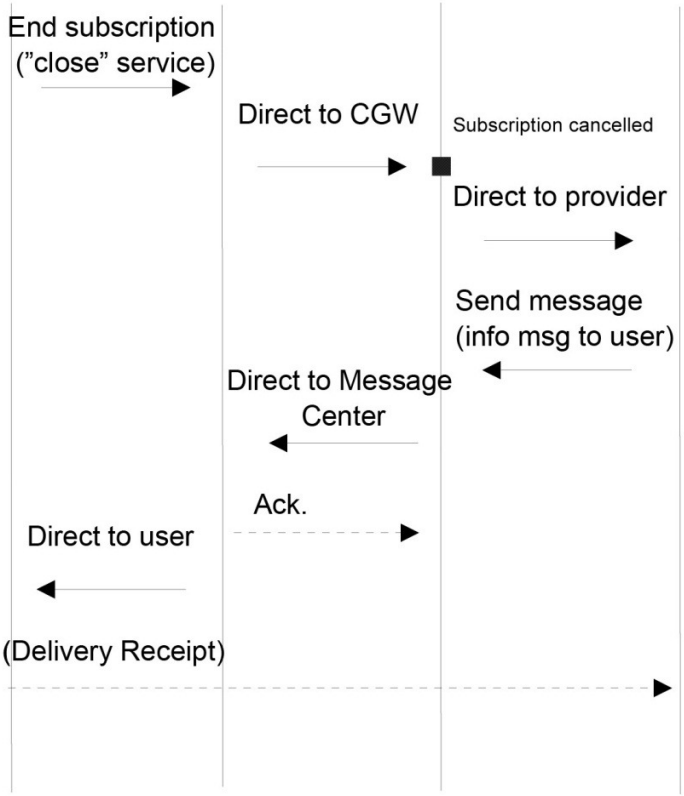
service id: 0124

time: 2003-10-14 14:07:50

No orders

Push ("unsubscribe")

Mobile Station Message Center CGW Application



6. If the end user does not want the content anymore, sending a closing message to CGW closes the subscription. The closing message is like any other MO message and after receiving it CGW removes the subscription. Once the subscription has been removed, the end user will not receive content anymore.

7. Charging the push services is based on the subscription and the sent content. The charge for an individual message (content) has to be less or equal to the subscription charge.

4.2 Configuring Services with Provider Admin

Provider Admin allows you to configure your services and administrate Provider Server.

NOTE ***Please note that some configuration settings depend on the agreement between you and your operator, and therefore, some of the attributes might not be visible/usable in the user interface.***

The service configuration section has the following functionalities:

Function	Description
All services	Lists all configured services of the provider.
New Send Only service	Opens a display for creating a new Send Only service.
New Receive Only service	Opens a display for creating a new Receive Only service.
New Query/reply service	Opens a display for creating a new Query/reply service.
New Push service	Opens a display for creating a new Push service.

4.2.1 List All Configured Services

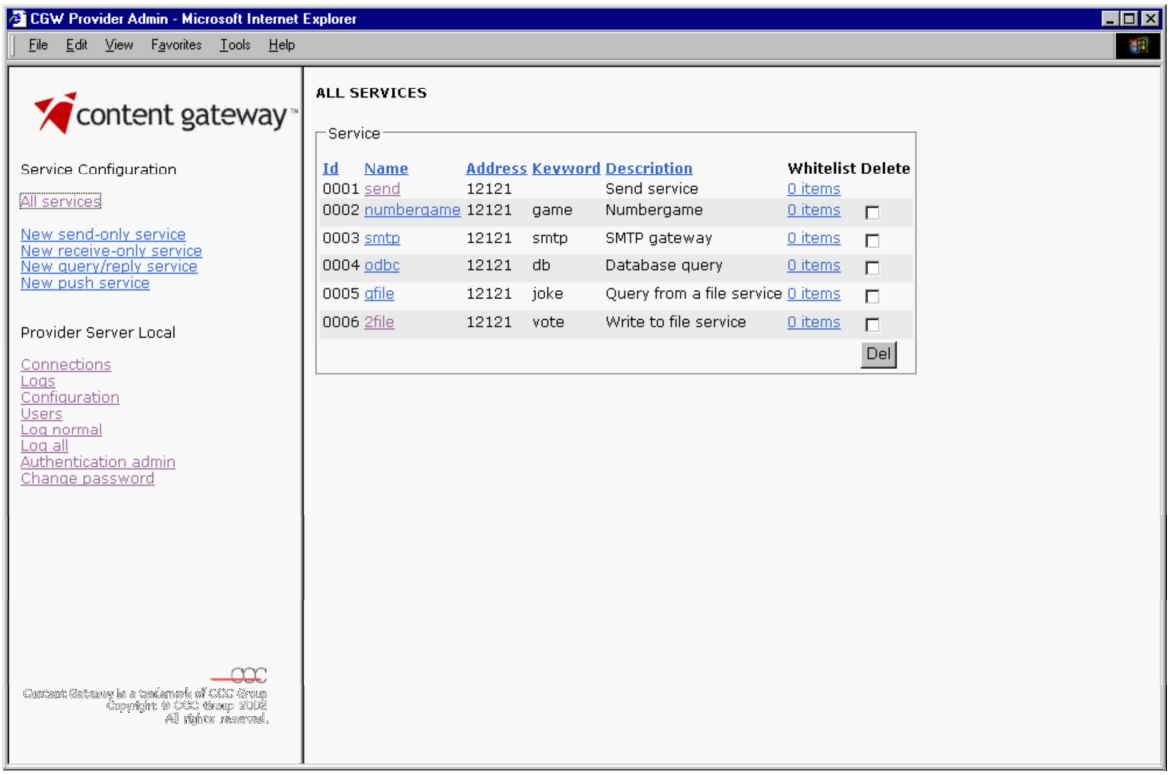


Figure 3. List of All Services

By default, Provider Server has some predefined services with default configuration values for the ready-made application of Content Gateway. Please verify that these settings are appropriate for your purposes.

4.2.2 Creating a New Send Only Service

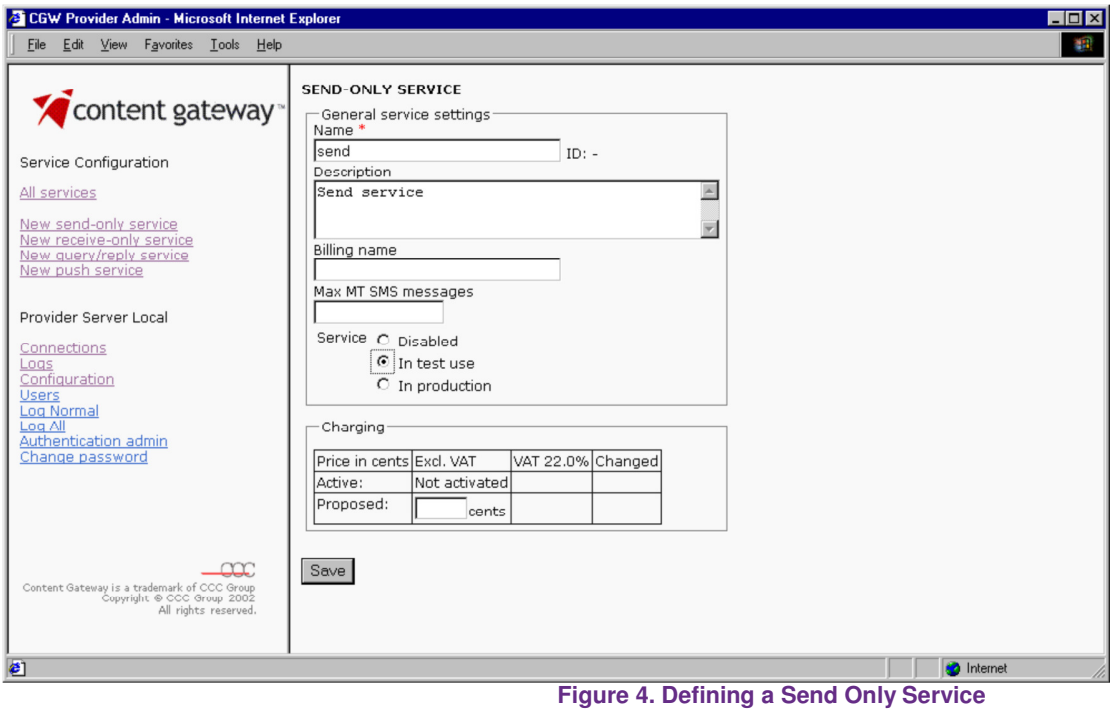


Figure 4. Defining a Send Only Service

4.2.2.1 General Service Settings

1. The ***ID*** of the service is generated automatically by Content Gateway and cannot be changed.

2. Enter the name of the service in the ***Name*** field. The service names have to be unique within a Short Number. Use only letters and numbers in the name of the service. Avoid special characters, umlaut characters and spaces.

3. Enter a short description of the service in the ***Description*** field.

4. Enter a billing name of the service in the ***Billing Name*** field. The billing name is used in the invoice to identify the service. You can use billing name only if you have agreed it with your operator. Otherwise, the text field is not available.

5. Enter a maximum number of messages to be sent to the user in the ***Max MT SMS Messages*** field. Content Gateway uses this parameter to create SMS messages from the content. If this value is too small, the rest of the original message will be cut. If the value is empty, the operator's default value will be used.

6. If you wish to disable the service/make unavailable to the users, click the ***Disabled*** radio button.

7. If you wish to use the service in a live environment for testing purposes without billing, click the ***In test use*** radio button.

8. If you wish to use the service in a live environment with billing, click the ***In Production*** radio button. Please note that this option and the associated behavior may vary and depends on the agreement between you and your operator.

9. ***Proposed price***. You can propose a price for this service. The proposed price becomes effective upon the operator's acceptance. The ***active price*** is shown above the Proposed price. Please note that the price is nominated in cents. Note also that this parameter and the associated behavior depends on the agreement between you and your operator.

10. Click ***Save*** to save the service configuration.

4.2.3 Creating a New Receive Only Service

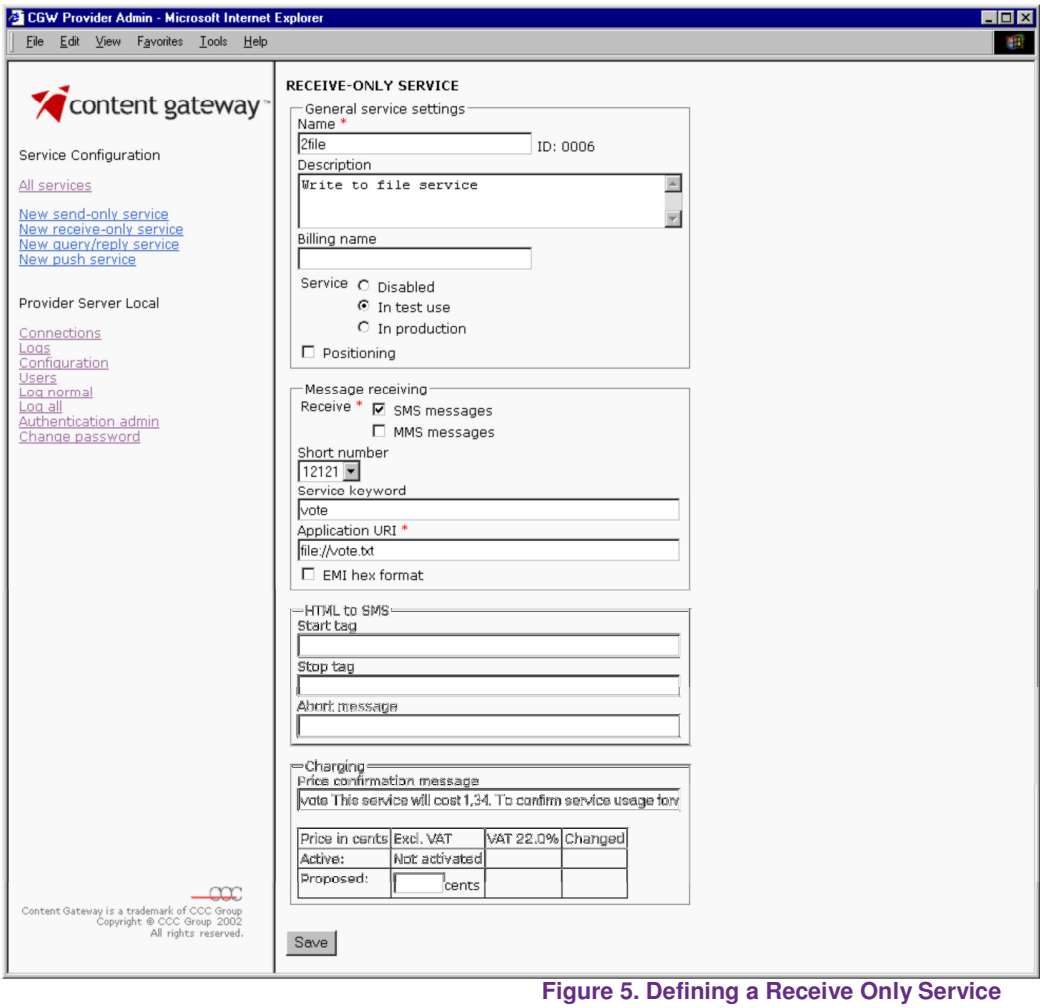


Figure 5. Defining a Receive Only Service

4.2.3.1 General Service Settings

If you wish to receive location information on the users upon service requests, check that the ***Positioning*** check box is selected.

4.2.3.2 Message Receiving

1. For receiving ***SMS messages***, check that the SMS messages check box is selected. For receiving MMS messages, check that the ***MMS messages*** check box is selected. You can use MMS only if you have agreed it with your operator. Otherwise, the MMS check box is invisible.

2. Select the ***Short Number*** from the list.

3. Define the ***Service keyword***. Keywords have to be unique within a Short Number. Use only letters and numbers in the name of the service. Avoid special characters, umlaut characters and spaces.

4. Define the ***Application URI***. You can define the application's protocol, address, and port number. Enter the following in the URI field: the protocol used for the service, the address of the machine where the application is running and the application's port number. Do not change the default port number if it is not necessary. The structure of the setting is as follows:

   Protocol://serveraddress:portnumber

   You can use the following protocols in the URI field: CGW, CGW3, text, file, HTTP, SMTP, SMPP and EMI. CGW and CGW3 are legacy protocols of Content Gateway. "Text" stands for Content Gateway's Open Text Protocol (OTP). File protocol is used when the service needs a file (e.g. Send to File, Query from File). The used file and file path is defined in URI field. HTTP means the normal HTTP protocol, the SMTP protocol support replaces the functionality of the old SMTP application, and EMI is used when using the UCP/EMI tunneling. SMPP can be used similarly to EMI. For more information on the usage of the protocols, see the document *Protocols*.

5. Select the ***EMI hex format*** check box, if you wish to transfer messages in hex format.

NOTE ***If you have developed the service application with the Content Gateway Java API, define the protocol in the URI field as text://serveraddress:portnumber. This is because the Java API is built on the Open Text Protocol.***

4.2.3.3 Charging

1. ***Price confirmation message***. This message is delivered to the user to confirm service usage if, e.g. the price of the service exceeds the price limit defined by the operator. The

user has to confirm the service usage by forwarding the confirmation message to the same Short Number. If the first message received from the user is not the same as the price confirmation message, or there is no return message during the configured time period, Operator Server concludes that the user does not want to use the service and discards the original message. *Note that if the service has a keyword, the first word of the price confirmation message has to be the keyword*.

2. ***Proposed price***. You can propose a price for this service. The proposed price becomes effective upon the operator's acceptance. The ***active price*** is shown above the Proposed price. Please note that the price is nominated in cents. *Note also that this parameter and the associated behavior depends on the agreement between you and your operator*.

Click Save to save the service settings.

4.2.4 Creating a New Query/Reply Service

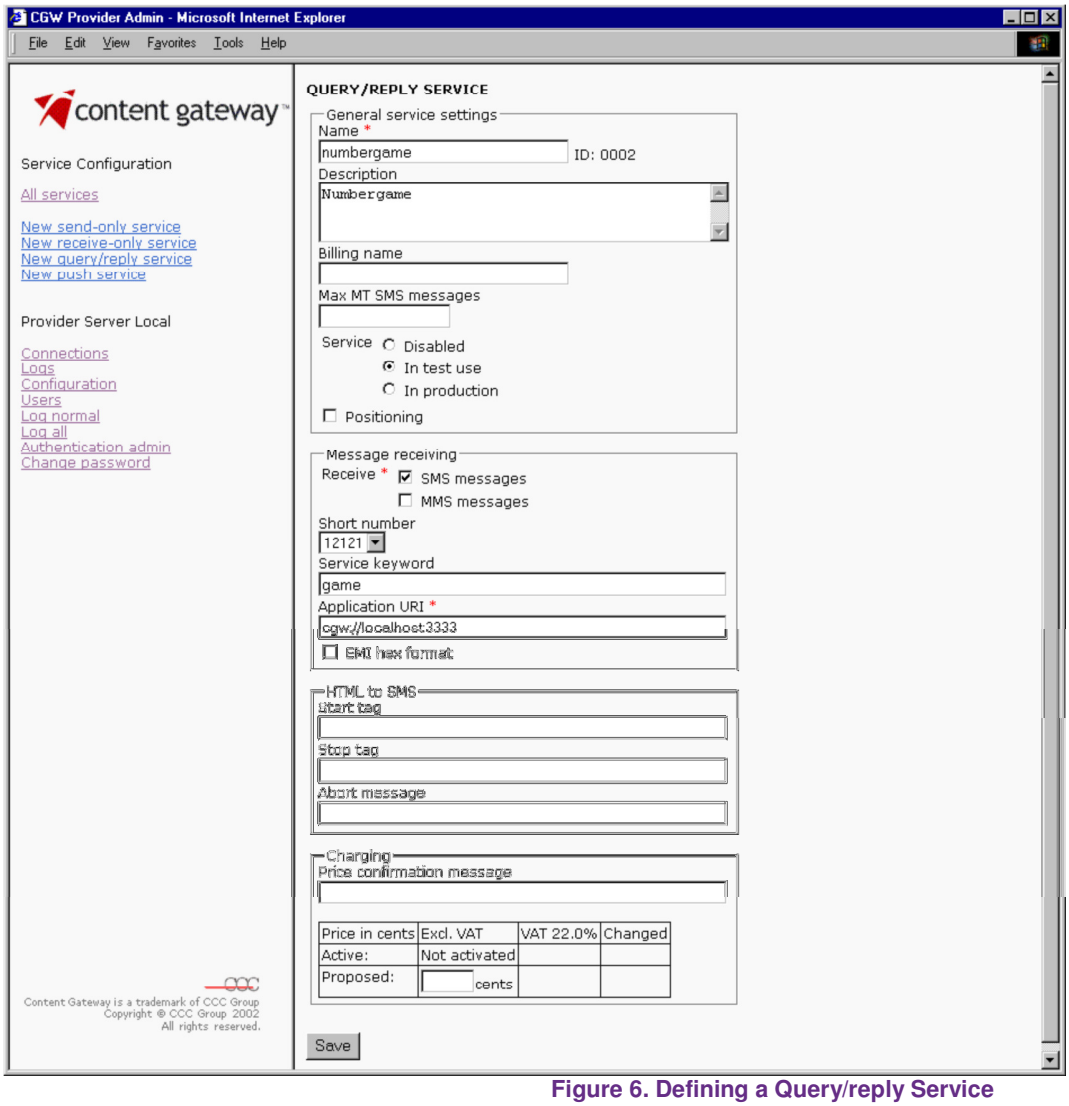


Figure 6. Defining a Query/reply Service

4.2.4.1 General Service Settings

See chapter 4.2.2.1 for a description of the general service settings.

4.2.4.2 Message Receiving

See chapter 4.2.3.2 for a description of the message receiving settings.

4.2.4.3 HTML to SMS

1. With the HTTP protocol support, you can transmit the content of a web page to a mobile terminal. To define which section of the web page to send to the mobile terminal, enter

the start and end tags in the ***Start tag*** and ***End tag*** fields. The tags can contain any kind of text. For more information, see the Protocols document.

2. ***Abort message*** is a message that will be sent to the end user if the session is aborted by the application.

NOTE ***You can find out more information about "HTML to SMS" from the Protocols document.***

4.2.4.4 Charging

See chapter 4.2.3.3 for a description of the charging settings and click **Save** to save the service settings.

4.2.5 Creating a New Push Service

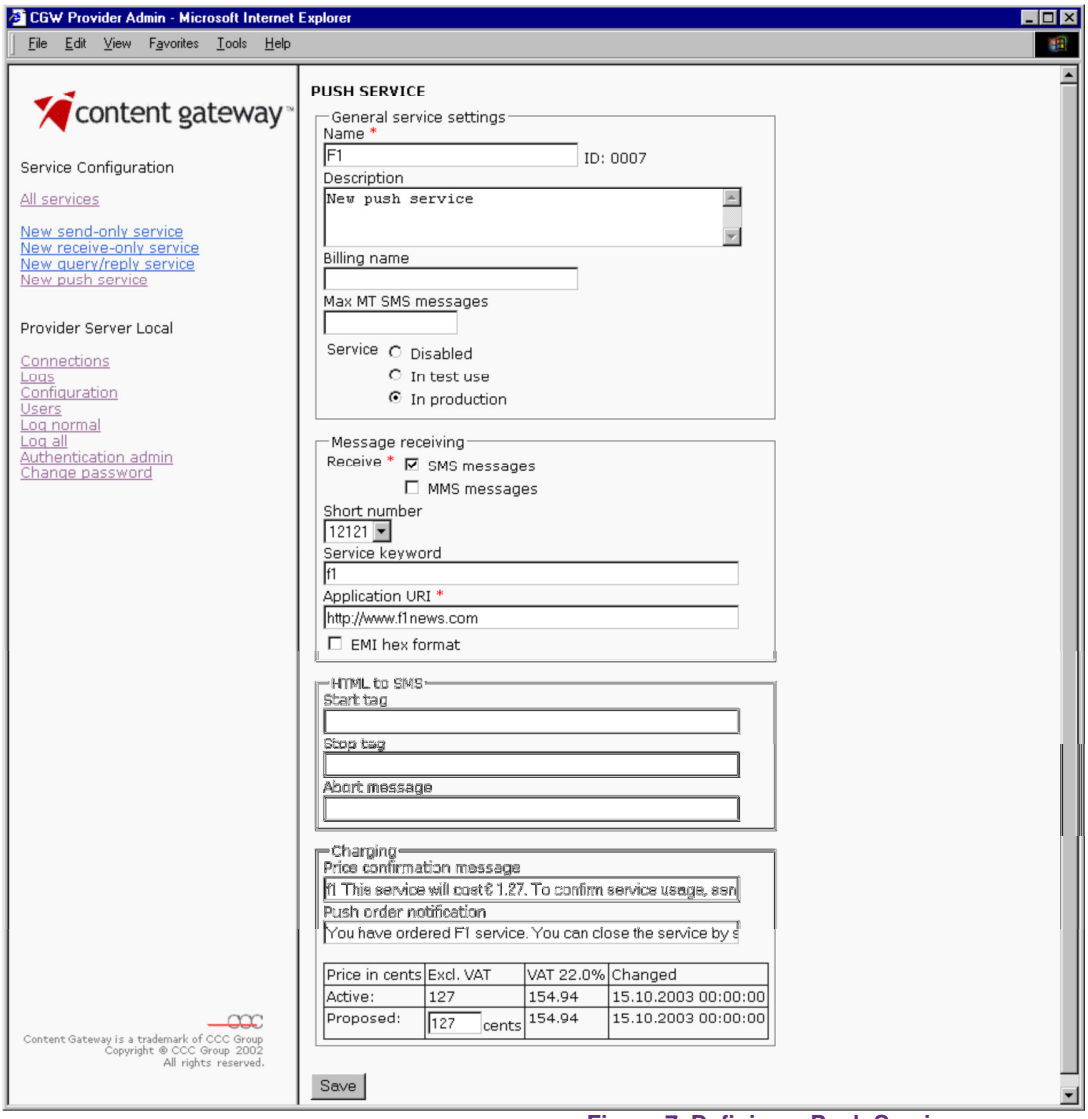


Figure 7. Defining a Push Service

4.2.5.1 General Service Settings

See chapter 4.2.2.1 for a description of the general service settings.

4.2.6 Message Receiving

See chapter 4.2.3.2 for a description of the message receiving settings.

4.2.6.1 Charging

1. ***A price confirmation message***, ***proposed*** and ***active price***. See chapter 4.2.3.3 for details.

2. ***Push order notification*** is a message sent to the user to inform that his/her push subscription has been successfully completed. Typically, the notification contains a welcome message, the price and service-specific instructions. The push service subscription becomes active after 5–10 minutes. This gives the user a chance to unsubscribe the service without having to pay for the content. Once the service becomes active, the user will receive push messages and will be charged accordingly. Note that closing the push service subscription may vary between operators. If you wish to include instructions for closing the service in this notification message, contact your operator to check the correct "close subscription" message.

See chapter 4.2.3.3 for a description of the charging settings and click **Save**.

4.3 Setting Access Rights for a Service – Whitelist

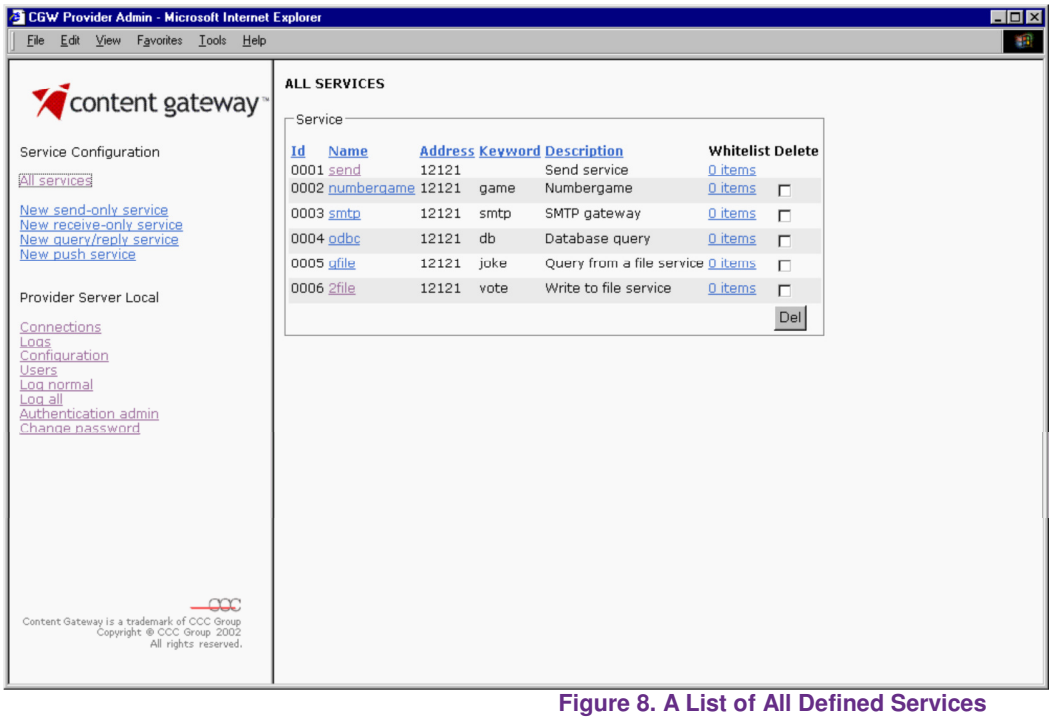

CGW Provider Admin - Microsoft Internet Explorer
File Edit View Favorites Tools Help
content gateway
Service Configuration
All services
New send-only service
New receive-only service
New query/reply service
New push service
Provider Server Local
Connections
Logs
Configuration
Users
Log normal
Log all
Authentication admin
Change password
Content Gateway is a trademark of CCC Group
Copyright © CCC Group 2002
All rights reserved.
ALL SERVICES
Service
Id Name Address Keyword Description Whitelist Delete
0001 send 12121 Send service 0 items
0002 numbergame 12121 game Numbergame 0 items
0003 smtp 12121 smtp SMTP gateway 0 items
0004 odbc 12121 db Database query 0 items
0005 ufile 12121 joke Query from a file service 0 items
0006 2file 12121 vote Write to file service 0 items
Del

Figure 8. A List of All Defined Services

You can define access rights for a service by clicking the **All services** link that will lead you to the service list display. The ***Whitelist*** column displays the number of users that have the right to use the service. "0 items" means that all users are allowed to access the service. Whitelist can be defined for services that are *"In Production"* mode (See chapter 4.2.2.1).
For example, to define access rights to the Numbergame service click the Whitelist link of the service. The following display appears:

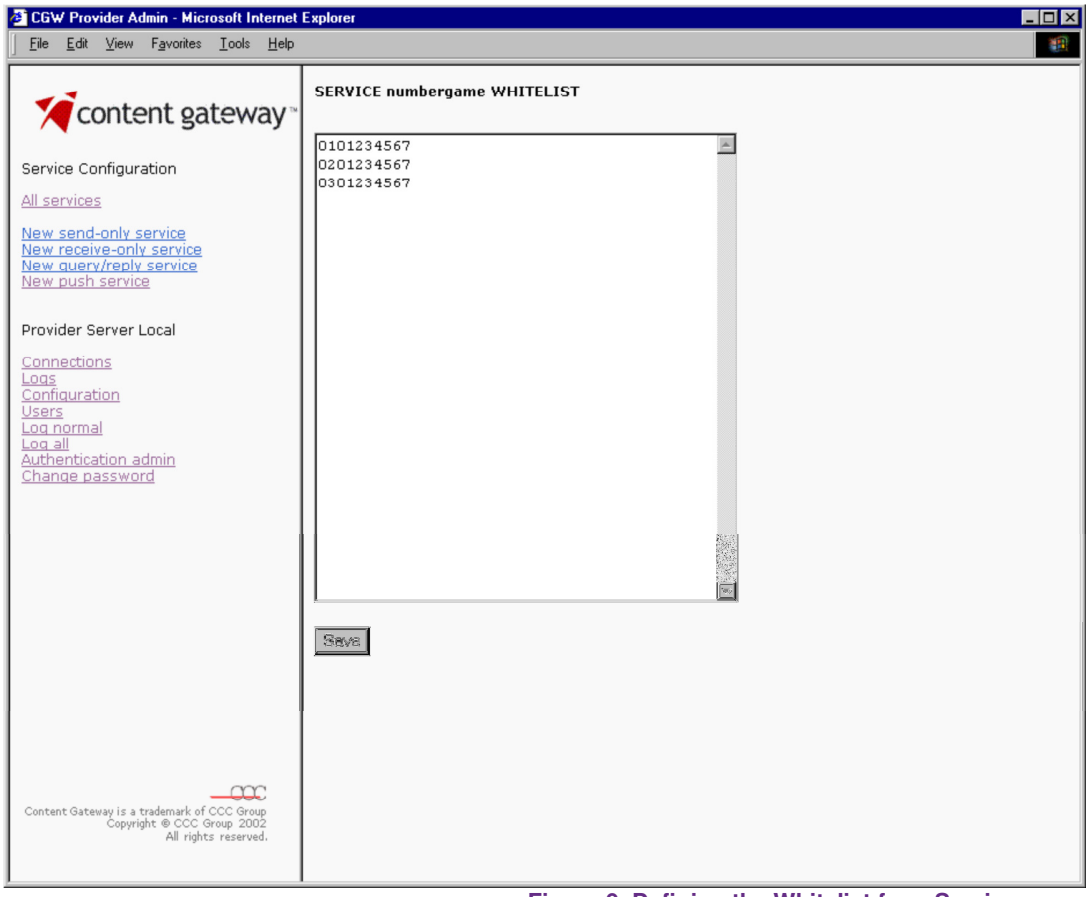


Figure 9. Defining the Whitelist for a Service

If you wish to limit the users' access to the service, you need to define mobile phone numbers (MSISDN) in the ***Service whitelist*** text box. Phone numbers have to be separated by a comma (,), a semicolon (;) or a carriage return. In the above example only the users with the phone numbers "0101234567", "0201234567" and "0301234567" have the right to use the Numbergame service. Provider Admin adds international prefixes to the numbers if they have not been defined.

NOTE ***The operator can define barring for the services. This does not show in the Provider Admin, but may cause some error messages to provider log. The end user cannot use a service that has a higher restriction class than user has in his phone subscription.***

4.4 Configuring Provider Server

Provider Server reads the settings from the *provider.cnf* configuration file. The configuration file must be located in the same directory as Provider Server (ProviderServer.exe). If you change the configuration settings, you need to restart Provider Server.
The basic Provider Server configuration is described in *Installation Guide*. Below you can find a more detailed listing of Provider Server's parameters and how they can be used.

NOTE ***Please be careful when changing the Provider Server configuration because that may affect your services.***

All configuration parameters are case insensitive.
One line in the configuration file contains a parameter and its value. For example:

```
logfile provider.log
loglevel 3
```

4.4.1 General Configuration

General configuration settings are the basic settings for the entire Provider Server.

Parameter	Default value	Description
loglevel	3	The level of the information that Provider Server prints to the log file. Optional. An example: loglevel 3
logfile		The name (and path) of the Provider Server log file. Without the path the current directory is used. You can use $(DATE) to insert the current date into the name of the log file. Optional. An example: logfile prov_$(DATE).log
licencefile		The name (and path) of the Provider Server license file. Without the path the current directory is used. Mandatory. An example: licencefile provider.lic

usersfile		The name (and path) of the user alias/group file. Without the path the current directory is used. Optional. If not defined, user aliases and groups cannot be used. An example: usersfile users.cnf
authfile		The name (and path) of the auth file. Without the path the current directory and default file is used. Optional. If not defined, the default filename is used. An example: authfile auth.cnf
keep-open	no	Set the value of the parameter to "yes" if you want Provider Server to keep the connection to Operator Server always open. If the connection is closed, Provider Server will re-open it within about one minute. Optional. An example: keep-open yes
password		The default password for the Provider Admin displays. If this is used, the username is "remote". This is an obsolete parameter. Not recommended to be used if not necessary for backwards compatibility. Optional. An example: password newerkess
bind-address		The address used to bind the source addresses of both incoming and outgoing connections. This should be used if you are running Provider Server in a multi IP server and need to bind it to a specific address. Optional. An example: bind-address 192.11.22.33

max-connections		The maximum number of connections Provider Server will accept. Should be used only when the operating system's maximum number of file descriptors is very low and you need to guarantee that Provider Server does not crash. Optional. An example: max-connections 200
log-history		By default you can see the last 200 messages on the Provider Admin log display. If you need to see more, increase the number with this parameter. You can also disable log history by setting the value to zero. Optional. An example: log-history 0
user		User password and group configuration. Syntax: User<username><password>[group 1]…[groupN] Username and password are mandatory. Groups are optional. Parameters cannot contain spaces. This is an obsolete parameter. Not recommended to be used if not necessary for backwards compatibility. Optional. An example: user johnsm passwd users admin

4.4.2 Incoming Connections Configuration

Incoming connections configuration settings define the listen port configuration. Provider Server uses the default values for the parameters app-port, crypted-port, text-port and admin-port, but you can override any default value in the configuration file.

Parameter	Default value	Description
app-port	31771	The Provider Server port listening for incoming application connections using the CGW3 protocol. Mandatory. An example: app-port 31771
crypted-port	31779	The Provider Server port listening connections from OT. Mandatory. An example: crypted-port 31779
http-admin-port	First unused from series 8080, 9080, 7080, 8081, 8082, 8083, 8084, 8085, 8086, 8087, 8088, 8089, 8090	The Provider Server port listening for incoming HTTP connections for Provider Admin displays. This is the port you should point your web browser in order to see the Provider Server admin pages. Important: Provider Admin is a standard www application. It is important that the server security settings are correct. (See parameter port-auth and chapter 4.4.4 Security Configuration). Mandatory. An example: http-admin-port 8081
text-port	21772	The Provider Server port listening for incoming OTP connections. This is needed for Java API support. Mandatory. An example: text-port 21772
http-port		The Provider Server port listening for incoming HTTP connections. Optional. A missing value means that Provider Server does not accept the HTTP connection. An example: http-port 7080

smpp-port		The Provider Server port listening for incoming SMPP connections. Optional. A missing value means that Provider Server does not accept the SMPP connection. An example: smpp-port 3176
emi-port		The Provider Server port listening for incoming EMI connections. Optional. A missing value means that Provider Server does not accept the EMI connection. An example: emi-port 3177
smtp-port		The Provider Server port listening for incoming SMTP connections. Optional. A missing value means that Provider Server does not accept the SMTP connection. (See chapter 5.6.1 SMTP Configuration). An example: smtp-port 25

4.4.2.1 Advanced Configuration for Incoming Connections

The basic port configuration is described in the previous chapter. In order to set more advanced parameters you need to use the syntax "port <portnumber> <parameter>". For example: set the connection timeout to 60 seconds for port 9999 and bind the port to the address 192.11.22.33.

```
http-port 9999

port 9999 timeout 60

port 9999 bind-address 192.11.22.33
```

All the advanced parameters are optional.

Parameter	Default value	Description
auth		The port authentication type. Possible syntax: 1. Username and password are visible the in configuration file: Auth

		plain<username><password> An example: port 9999 auth johnsm mypass 2. Username and password are base64 encoded (See RFC 2617) in the configuration file: Auth basic<username+password base64> An example: port 9999 auth Basic am9objpteXBhc3M= 3. Allowed users or user groups are listed: Auth group<group-names> An example: port 9999 auth group admin
timeout	The default values for the protocols: HTTP 120 sec CGW, OTP/text 0 SMTP 60 EMI, SMPP 30	The connection timeout in seconds. If there are no messages in connection to the port within the given period, the connection will be closed. Value 0 means that there is no timeout and the connection is kept open as long as possible. An example: port 9999 timeout 60
ack-timeout	The default values for the protocols: HTTP 120 sec CGW, OTP/text 0 SMTP 60 EMI, SMPP 30	The connection acknowledgement timeout in seconds. If there is no acknowledgement for the message in connection to the port within the given period, the connection will be closed. You should always define the value greater than 0 but not too long, because then the application error identification is delayed. An example: port 9999 ack-timeout 60

bind-address		The address to bind the listen port. This should be used if you are running Provider Server in a multi IP server and need to bind it to a specific address. Optional. An example: port 9999 bind-address 192.11.22.33
max-connections		The maximum number of connections to listen to the port. An example: port 9999 max-connections 200
send-capacity		The maximum number of messages per second that can be sent to any connection connected to the port. The capacity is the total port capacity, for example: set to 10 and there are two connections to the port, each will receive max 5 messages in a second. An example: port 9999 send-capacity 5
receive-capacity		The maximum number of messages per second that can be received from all connections connected to the port. The capacity is the total port capacity, for example: set to 10 and there are two connections to the port, each will receive max 5 messages in a second. An example: port 9999 receive-capacity 5

4.4.3 Outgoing Connections Configuration

Outgoing connections configuration settings are defined separately for each service. In order to set service (application) parameters, use the syntax "service <serviceid> <parameter>". For example: set the connection timeout to 60 seconds for service 1022 and bind the port to the address 192.11.22.33:

Service 1022 timeout 60

Service 1022 bind-address 192.11.22.33

The service ID is given in four digits (0001, 0010, 0100, 1022…). Service id can be found from Provider Admin's service settings display.
All parameters are optional.

Parameter	Default value	Description
timeout	The default values for the protocols: HTTP 120 sec CGW, OTP/text 0 SMTP 60 EMI, SMPP 30	The connection timeout in seconds. If there are no messages in connection to the application within the given period, the connection will be closed. Value 0 means that there is no timeout and the connection is kept open as long as possible. An example: service 1022 timeout 60
ack-timeout	The default values for the protocols: HTTP 120 sec CGW, OTP/text 0 SMTP 60 EMI, SMPP 30	The connection acknowledgement timeout in seconds. If there is no acknowledgement for the message to the application within the given period, the connection will be closed. You should always define the value greater than 0 but not too long, because then the application error identification is delayed. An example: service 1022 ack-timeout 60

connect-timeout	10 sec	The connect timeout in seconds. If the connection to the application cannot be established within the given period, the connection will be closed. You should always define the value greater than 0 but not too long, because then the application error identification is delayed. An example: service 1022 connect-timeout 15
bind-address		The address to bind the outbound connection to. This should be used if you are running Provider Server in a multi IP server and need to bind it to a specific address. Optional. An example: service 1022 bind-address 192.11.22.33
bind-port		The port number to bind the outbound connection to. This should be used if your application requires a specific source port for the connection. Note that you must set the services max-connections to 1. An example: service 1022 bind-port 3333
max-connections		The maximum number of outbound connections to the application. An example: service 1022 max-connections 5

send-capacity		The maximum number of messages per second that can be sent to the application. The capacity is the total service capacity, for example: set to 10 and there are two connections to the application, each application will receive max 5 messages in a second. An example: service 1022 send-capacity 5
receive- capacity		The maximum number of messages per second that can be received from all connections connected to the application. The capacity is the total service capacity, for example: set to 10 and there are two connections to the application, each will receive max 5 messages in a second. An example: service 1022 receive-capacity 5

4.4.4 Security Configuration

Because Provider Admin has a web-based user interface, it is important that the Provider Server security settings are correct in order to prevent any unwanted access to the Provider Server configuration, service configurations or service prices.
Usernames and passwords are defined in the auth.cnf file.

Security configuring:

Define possible users and their user groups. There are two predefined user groups in Provider Server:

- Admin – full access rights (administer Provider Server settings)
- User – limited access (administer service settings)

The syntax for defining users and their groups is:

<username> <password> [group1] … [groupN]

For example: There are three users: John, Susan and Ann. John belongs to both the "admin" and "users" user group and Susan and Ann are ordinary users and belong only to the "users" user group. The user group configuration could look like:

John jpasswd admin users

Susan spasswd users

Ann apasswd users

Note that if you configure the auth.cnf file manually all passwords are written in plain text. If you configure the auth.cnf from Provider Admin displays, all passwords are written in encrypted form starting with "=" – character.
Now the users can connect to the Provider Admin page as described in *Installation Guide*.
Username and password are mandatory.

Groups are optional.

Parameters cannot contain spaces.

4.5 Testing services with Test Phone

Before you have activated a license for a live environment, you can test your services with Test Phone. Test Phone is a Windows application, which allows you to send messages to and receive messages from your service application without a connection to the Operator's environment. Test Phone can be used with the default test license, which is included in the Windows setup package.
Once you have activated the live license, you cannot use Test Phone anymore with the same instance of Provider Server. This is to prevent sending test messages accidentally to a live network. If you wish to continue to use Test Phone, you can install Provider Server to a separate environment, which is not connected to a live network.
First you have to configure Test Phone. In this example, Test Phone is used to test numbergame.exe.

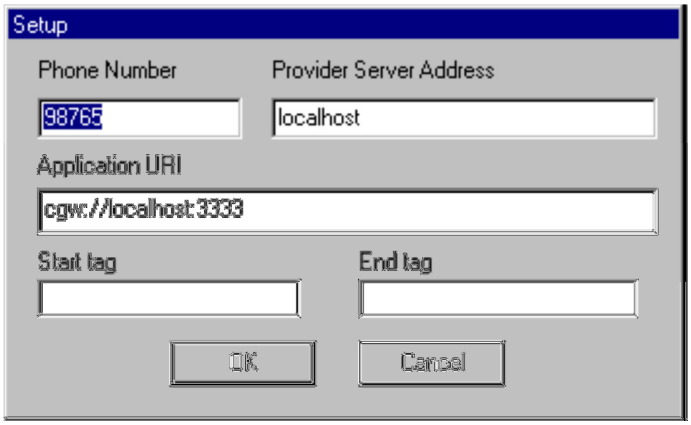


Figure 10. The Test Phone Setup Display

Display element	Description
Phone Number	The phone number that is shown as the sender in the message
Provider Server Address	The address of the Provider Server your service is connected to. This is usually localhost.
Application URI	The address of your application or web site.

Start tag and end tag	When testing the HTTP protocol to fetch content from the web site defined in the application URI, you can define the start and end tags of the requested content.
OK	Accepts the set up.
Cancel	Cancels the set up and closes the display.

Use Test Phone to send a message to the application and to receive a reply from it.

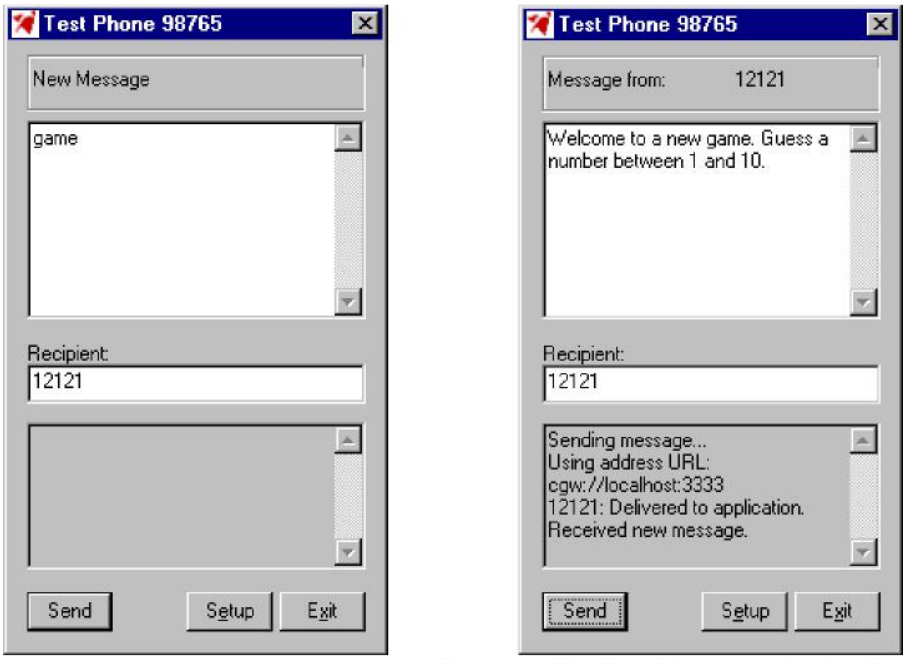


Figure 11. The Test Phone Application Testing Numbergame

Display element	Description
New Message/Message from:	Shows that you are about to write a new message (sending) or the origin of the message (receiving).
Message text box	The message to be sent is written to text box. The received reply is also written to the text
Recipient:	The recipient (for example, your application's short number) is written here.
Debug window	The send information and status are written here.
Exit	Closes the application.

Setup	Opens the setup window.
Send	Sends the message.

4.6 Administrating Provider Server

Provider Admin allows you to administrate your Provider Server. The following administrative functions are available:

Function	Description
Connections	Displays the connections and their statuses to and from the local Provider Server.
Logs	Displays the current Provider Server log file.
Configuration	Displays the contents of provider.cnf. Saving the changes resets the Provider Server.
Users	Displays the contents of users.cnf.
Log normal	Changes the log level to 3 (normal logging).
Log all	Changes the log level to 4 (more detailed logging).
Authentication admin	Administration of user names, passwords and user rights. This function changes the contents of auth.cnf
Change password	Changing the password for Provider Admin user account.

4.6.1 Connections

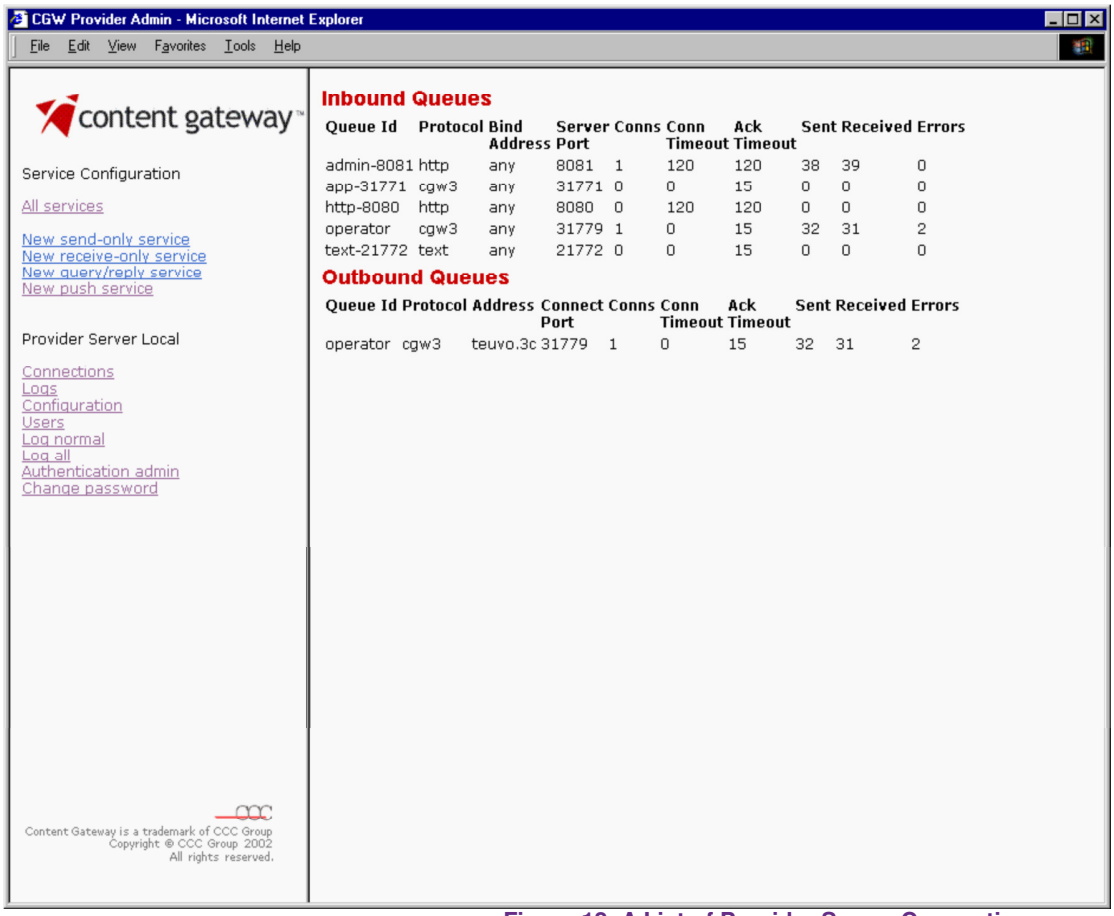

CGW Provider Admin - Microsoft Internet Explorer
File Edit View Favorites Tools Help
content gateway
Service Configuration
All services
New send-only service
New receive-only service
New query/reply service
New push service
Provider Server Local
Connections
Logs
Configuration
Users
Log normal
Log all
Authentication admin
Change password
Content Gateway is a trademark of CCC Group
Copyright © CCC Group 2002
All rights reserved.
Inbound Queues
Queue Id Protocol Bind Address Server Port Conns Conn Timeout Ack Timeout Sent Received Errors
admin-8081 http any 8081 1 120 120 38 39 0
app-31771 cgw3 any 31771 0 0 15 0 0 0
http-8080 http any 8080 0 120 120 0 0 0
operator cgw3 any 31779 1 0 15 32 31 2
text-21772 text any 21772 0 0 15 0 0 0
Outbound Queues
Queue Id Protocol Address Connect Port Conns Conn Timeout Ack Timeout Sent Received Errors
operator cgw3 teuvo.3c 31779 1 0 15 32 31 2

Figure 12. A List of Provider Server Connections

In the above example, "Inbound Queues" indicate all open incoming protocol ports configured into Provider Server. "Outbound Queues" indicate all open outgoing protocol ports configured into Provider Server. In the above example, Provider Server has one open connection (outbound) to Operator Server.

- **Queue Id** is a unique identifier of the respective queue in the system.
- **Protocol** means the protocols available to the applications (for further information on the available protocols, please see Protocols).
- **Bind Address** "any" means that in case your machine has several IP addresses (network cards) configured, any of these addresses can be utilized for "Inbound" connections.
- **Server Port** means the port of the socket server.
- **Conns** means open (active) connections in that particular port.

- **Conn Timeout** means the time how long the connection is kept open.
- **Ack Timeout** means the time how long acknowledgement is to be waited before determining error status.
- **Sent** means the number of messages sent through this connection.
- **Received** means the number of messages received through this connection.
- **Errors** means the number of errors associated with the connection.

4.6.2 Logs

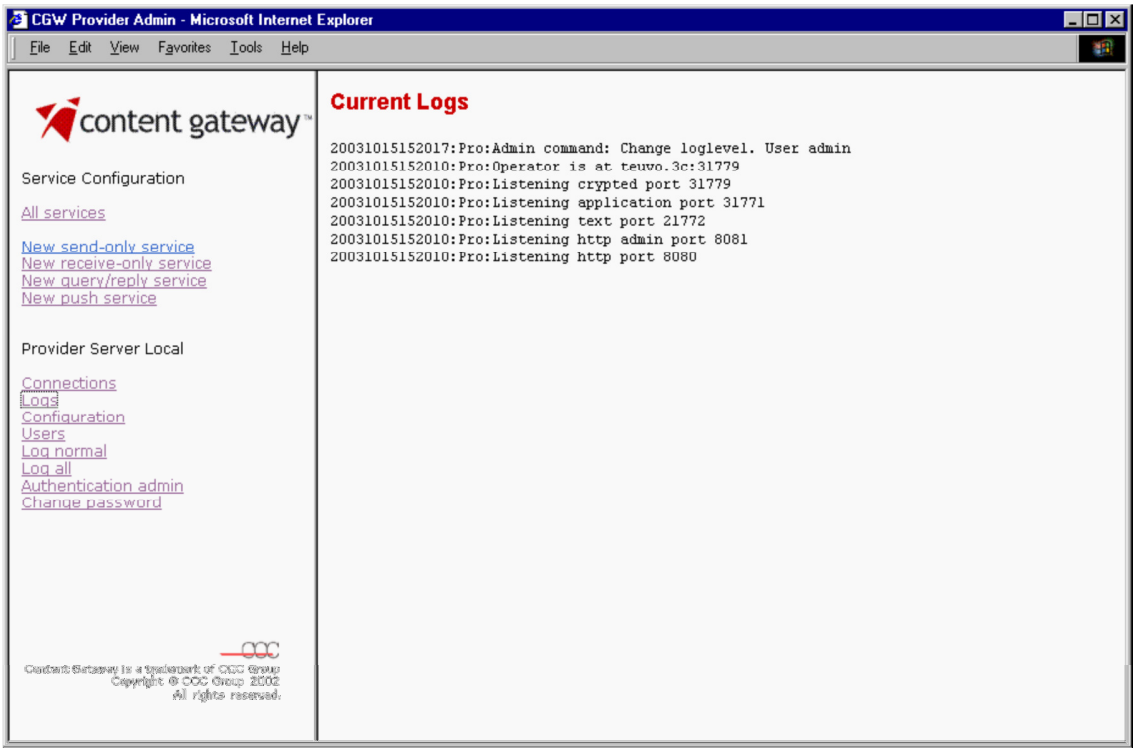


Figure 13. The Provider Server Log File

The Provider Admin tool enables you to view the current log file. You can change the number of visible log rows with the log-history parameter as described in chapter 4.4.1.

4.6.3 Configuration

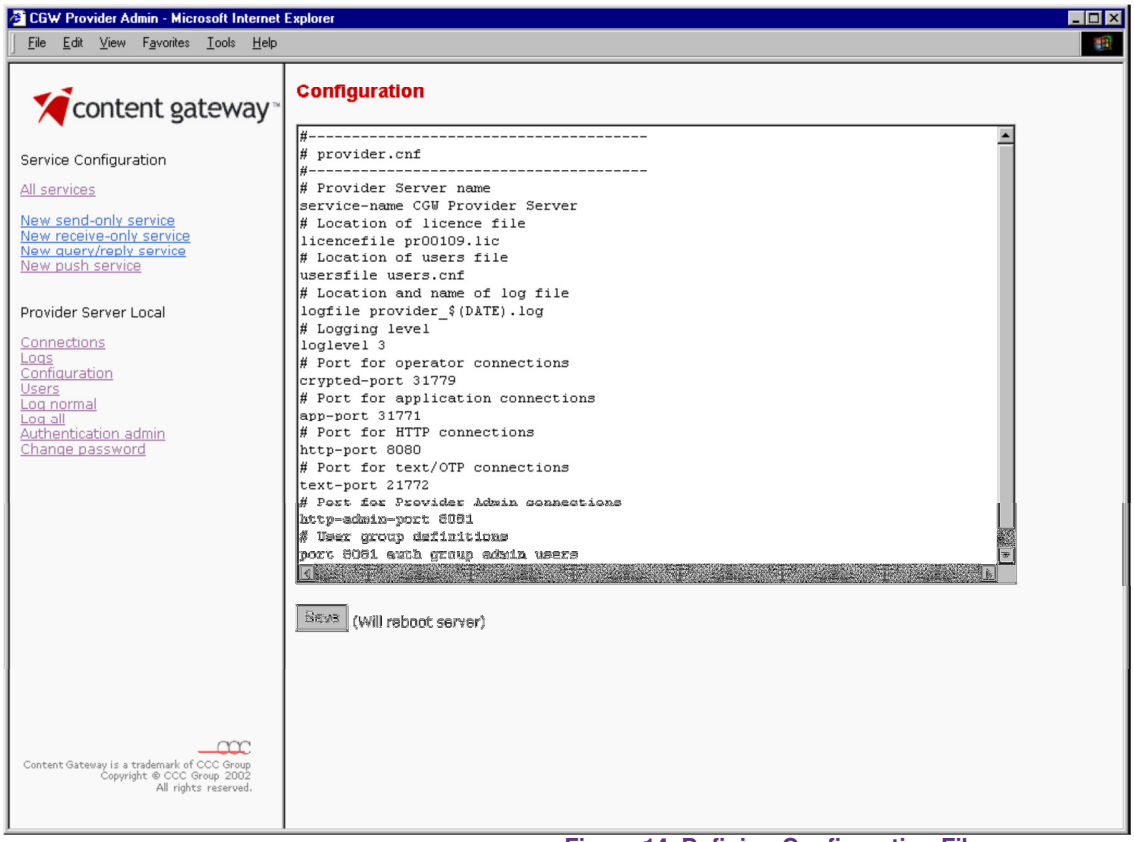


Figure 14. Defining Configuration File

The Provider Admin tool also enables you to change the configuration of your Provider Server by editing the text box and clicking **Save**. This resets the Provider Server. For more information about the configuration settings of Provider Server, please see chapter 4.4 of this document.

4.6.4 Users

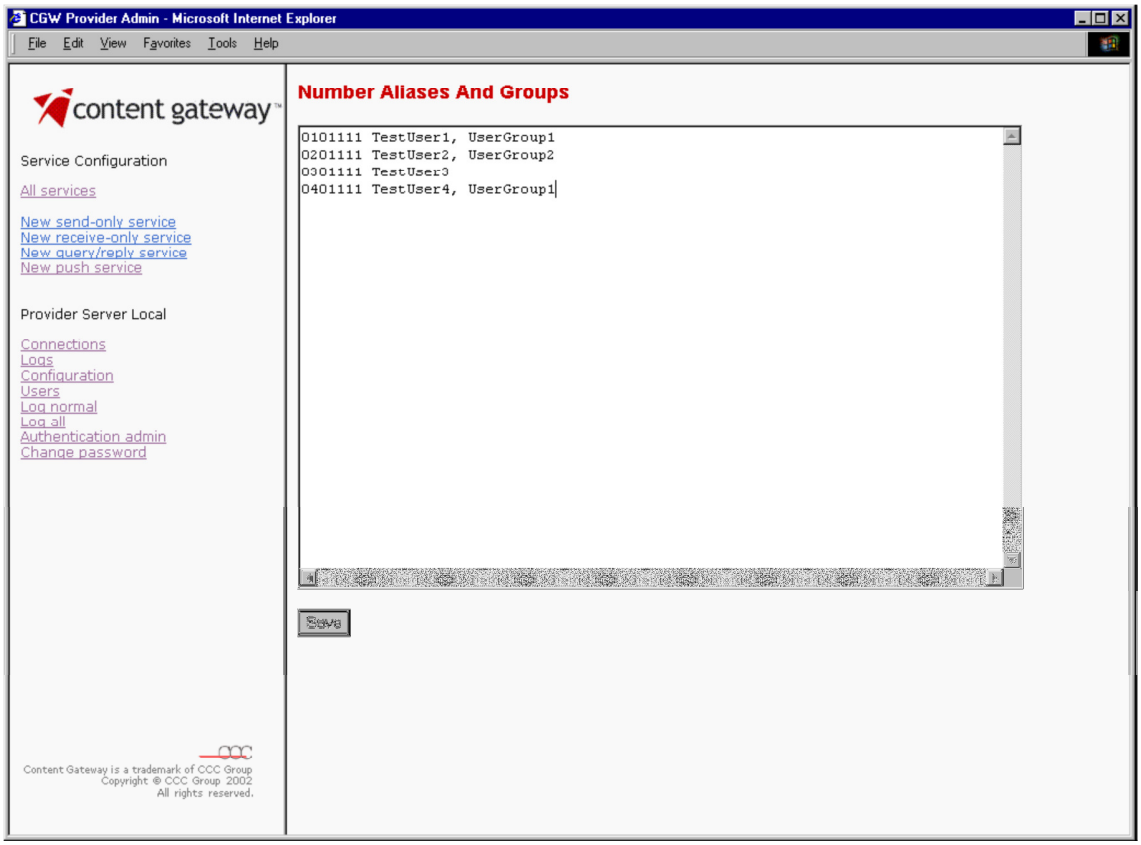


Figure 15. Defining Users and User Groups

The Provider Admin tool also enables you to define users and user groups to be utilized by your applications and services via APIs. For more information on the available APIs, please see the respective documents *C++ Guide, Java Guide* and *ActiveX Guide*.

New users and user groups are defined in the following format:

<MSISDN (phone number)> <user_alias>, <group name>, <group name>, ...

In the above example, the number
"0101111" has an alias name "TestUser1" and is a member of the user group "UserGroup1".

"0201111" has an alias name "TestUser2" and is a member of the user group "UserGroup2".

"0301111" has an alias name "TestUser3" and does not belong to any user group.

"0401111" has an alias name "TestUser4" and is also a member of the user group "UserGroup1".
You can define several user groups for one user in single row.

NOTE ***Note that Users display does not affect PA user names and passwords.***

4.6.5 Log Normal

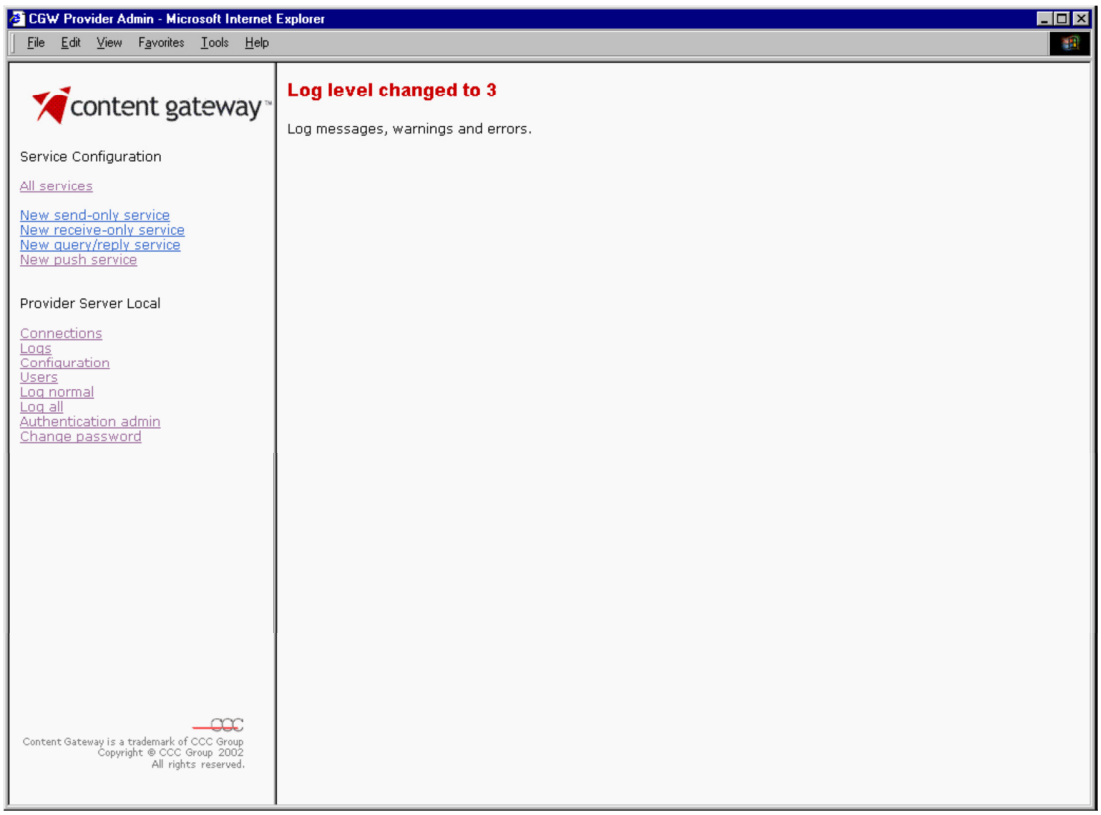


Figure 16. Defining the "Normal" Log Level

The Provider Admin tool enables you to change the log level of your Provider Server during runtime. "Log Normal" logs only messages, warnings and errors and is the preferred log level to be used in normal situations.

4.6.6 Log All

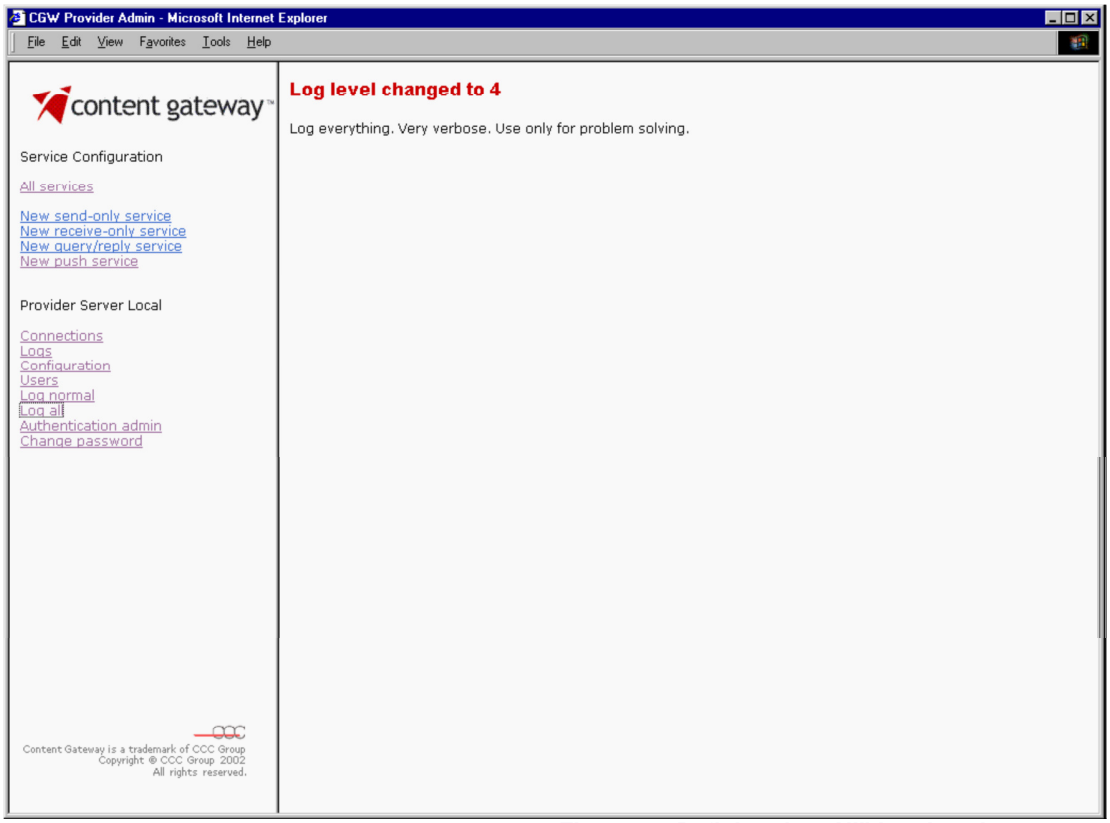


Figure 17. Defining the "All" Log Level

Log Level 4 ("All") logs very detailed information. This level may have an impact on the performance of your system. Please use this log level only for problem solving and troubleshooting.

4.6.7 Authentication Admin

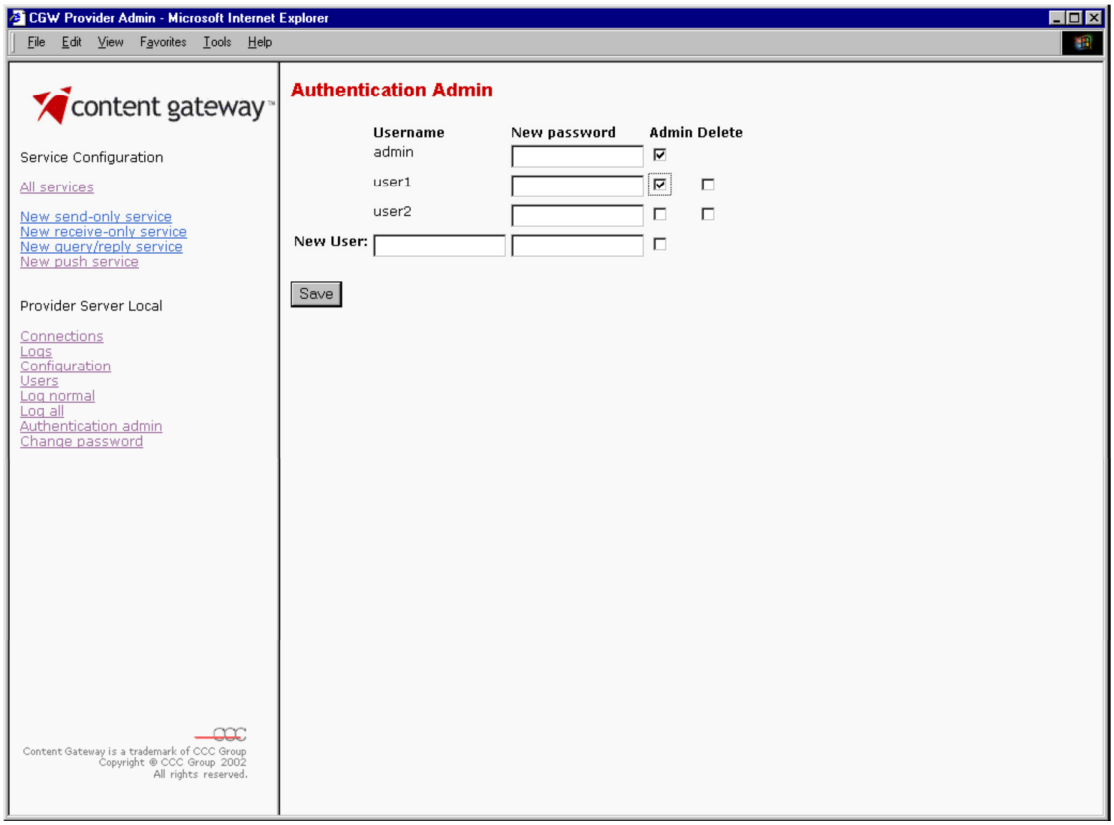


Figure 18. Administration User Authentication

The Provider Admin tool requires usernames and passwords in order to secure the usage. The securing is done with the Provider Server auth-parameter (see chapter 4.4.4).
You can add, modify and delete new users and their passwords in Authentication admin display. The display lists the existing usernames and you can give a new password or modify the user rights for those. Adding a new username is done by adding it to the ***Username*** text box and defining a password and the user rights.
The following restrictions are valid:

- Username needs the at least four (4) characters
- Password needs to be at least six (6) characters

If you check the ***Admin*** check box, the user belongs to the *admin* user group and is granted a full access rights to administrating the Provider Server. If the check box is not selected, the user belongs to the users user group.
Deleting the user is done with ***Delete*** check box.
Click ***Save*** after changes in display.

4.6.8 Change Password

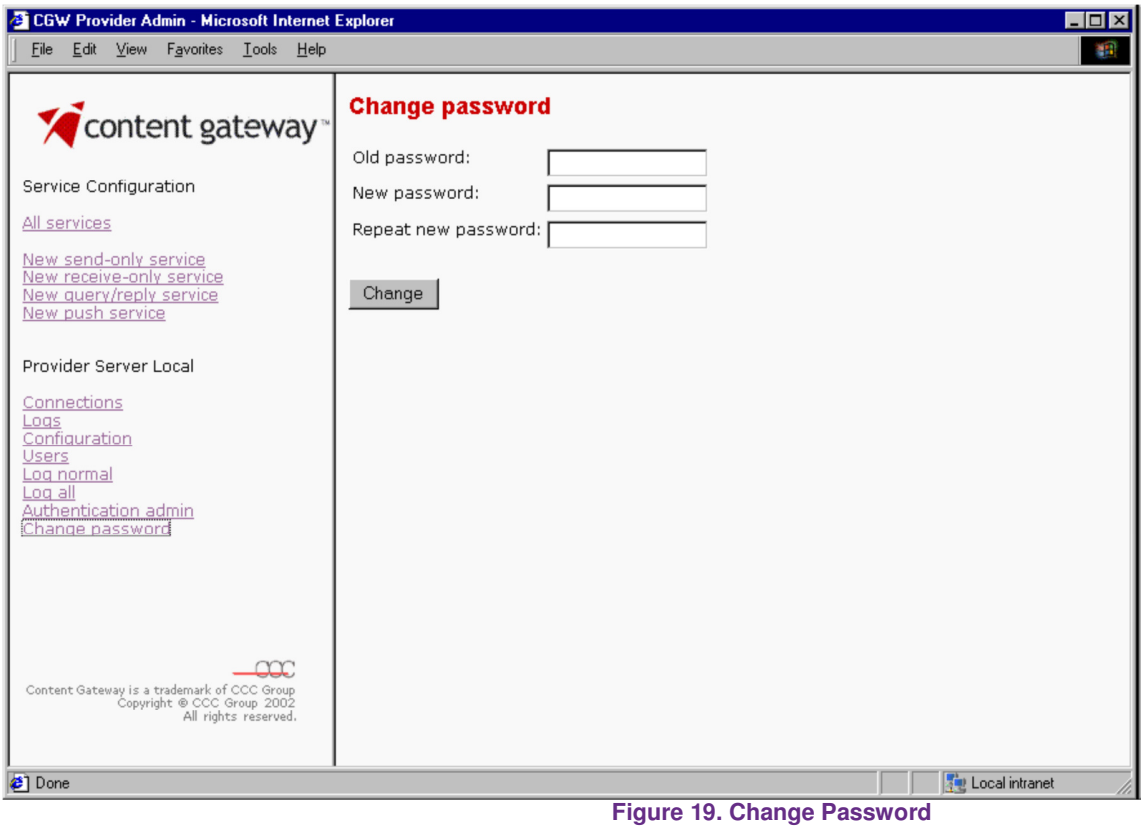


Figure 19. Change Password

The user can change his password with Change Password display. Type the old password and new password. Click ***Change*** to save changes.

5 Content Gateway Applications

The applications provided with Content Gateway are as follows:

Application	Executable	User interface
Send to File	-	The functionality is integrated into Provider Server.
Query from File	-	The functionality is integrated into Provider Server.
Send SMS	wsend.exe	Windows GUI
Send	send.exe	Windows Console
Numbergame	numbergame.exe	Windows Console

SMTP Gateway	-	The functionality is integrated into integrated into Provider Server.
ODBC Gateway	odbcgw.exe	Windows GUI
Test Phone	wphone.exe	Windows GUI

Ready-made applications are configured with the default values. After you have installed and configured the applications, you need to check the settings in the Provider Admin tool.

NOTE ***In order to use the C++ CGWAPI on UNIX system, you have to use version 3.3.1 of gnu c++ compiler.***

5.1 Send to File

The Send to File application is used for saving messages to the text file.
Send to File saves each sent message as one row in the text file. This can be used for receiving information (e.g. voting and competitions) or other data that can be easily read and processed further from the file. No parameters are used in Send to File.

The messages sent from the mobile terminal are stored in the following format:

<timestamp>:<Short Number>:<sender number>#<message>

For example:

20020612110817:12345:0401234567#Hello, this is a message from a phone to a file.

5.1.1 Configuration

The Send to File application is configured as a Receive Only service in Provider Server. The file where the messages will be saved is defined in the URI in the format: *"file://filepath"*, e.g.

file://vote.txt

The content of the file can be edited when needed. Note that when the file path is not defined to the file URI, it defaults to the directory where the Provider Server executable is located.
The following is an example of a Send to File service configuration:

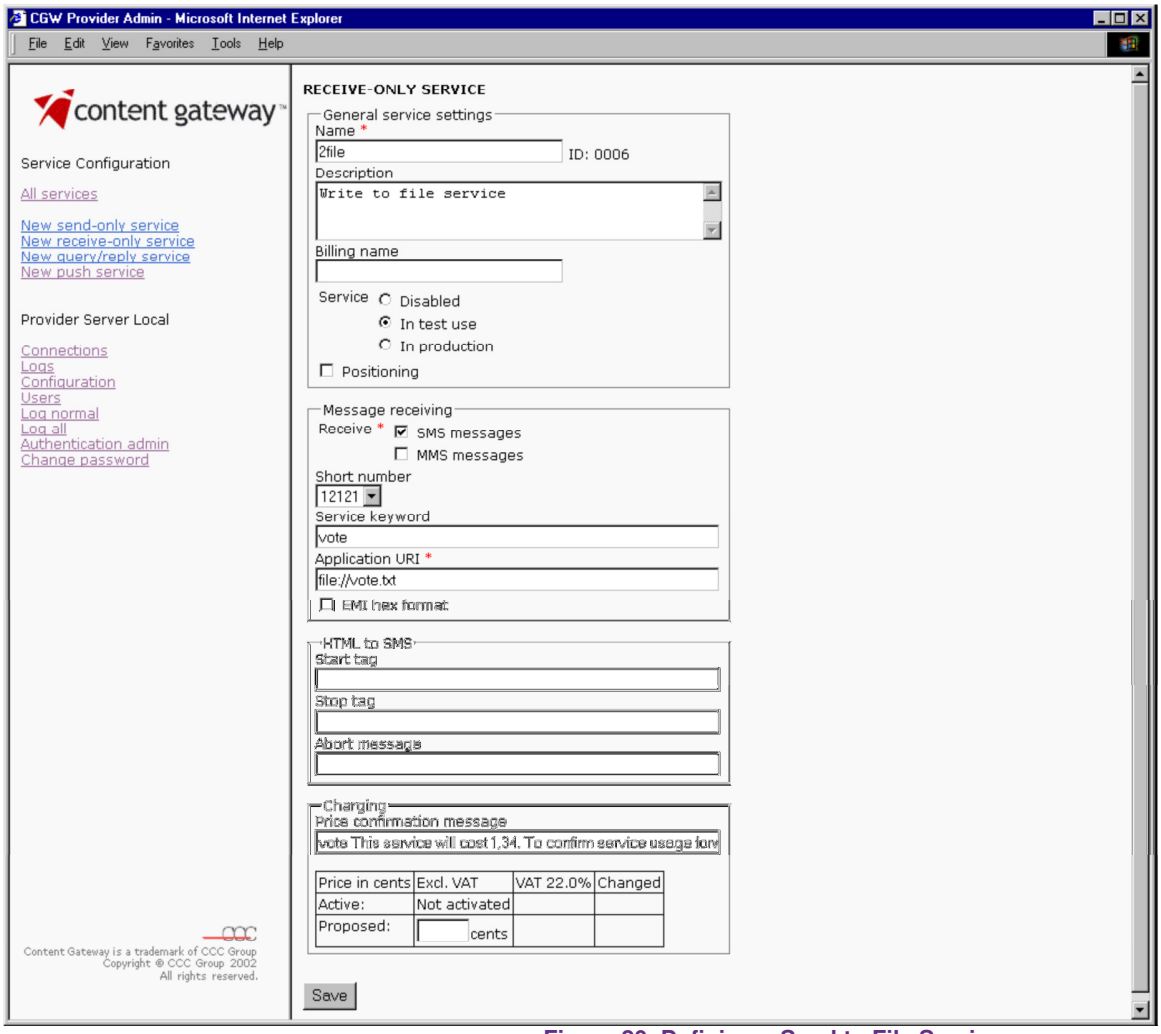


Figure 20. Defining a Send to File Service

5.1.2 Examples

Send an SMS message containing the keyword of the service to the Short Number.

keyword message

An example

vote YES John Smith 0101234567 Caloniuksenkatu 5 Helsinki

The message will be stored in the file vote.txt in the following format:

20030827111023:12121:0101234567:# YES John Smith Caloniuksenkatu 5 Helsinki

NOTE ***If you wish to forward the message to a file, use your mobile terminal's* forward *function. In the Edit window, you can add the keyword to the beginning of the message. Then send the message to the Short Number.***

5.2 Query from File

The Query from File application is used for reading messages from the text file. Query from File reads a row from the defined file. If no parameters are used, it returns a random row. A word can be used as a parameter, so that the row including a certain word will be returned. To configure Query from File with parameters, create a text file from which Query from File reads the data. The text in the file can be in the following format:

keyword message

keyword message etc.

One row contains one returnable message. Query from File can be used e.g., for joke services, when a joke is returned by random. Defining a keyword as the first word of the row enables parameter usage.

NOTE ***The same file can be used for Send to File and Query from File. The administrator can make the updates by sending new information, such as new jokes to the file with Send to File. The subscriber can get the data, such as jokes from the file using Query from File.***

5.2.1 Configuration

The Query from File application is configured as a Query/reply service in Provider Server. The file, from which the messages will be read is defined in the URI in the format: *"file://filepath"*, e.g.

file://joke.txt

The content of the file can be edited when needed. Note that when the file path is not defined to the file URI, it defaults to the directory where the Provider Server executable is located.

The following is an example of a Query from File service configuration:

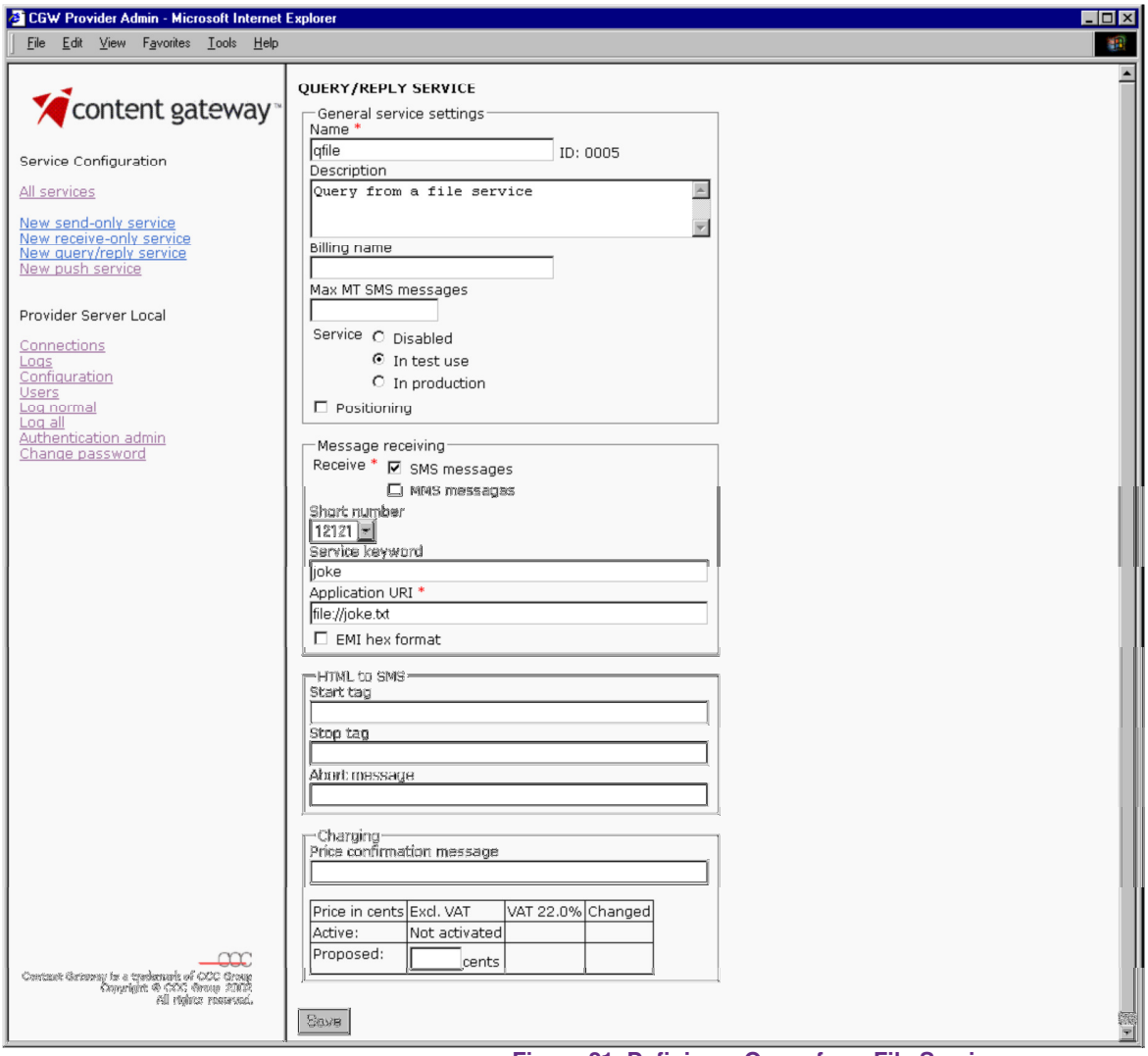


Figure 21. Defining a Query from File Service

5.2.2 Examples

With Query from File you can fetch a row from a file to your mobile terminal.
The example file is as follows:

> Joke1: Really successful man is one who makes more money than his wife can spend.
>
> Joke2: Bus station is where a bus stops. Train station is where a train stops. On my desk, I have a work station.

To fetch a specific row from the file, enter the keyword of the row at the beginning of the message. Send the following SMS message to the Short Number:

joke Joke1

Query from File returns the text from the row that begins with the keyword.
Joke1: Really successful man is one who makes more money than his wife can spend.

To fetch a random row from the file, send only the keyword to the Short Number:

Joke

Query from File returns a random row from the specified file.

5.3 Send SMS

The Send SMS application is used for sending SMS messages to mobile terminals. In addition to sending a message to one recipient, you can create recipient lists and send group messages. You can create the recipient lists in Send SMS's Phonebook.

5.3.1 Configuration

The Windows setup program installs Send SMS along with Provider Server. To install Send SMS in another computer, copy the wsend.exe file into its directory. To configure Send SMS, do the following:

Start Send SMS in ***Start –> Programs –> Content Gateway –> Send SMS***. You can also start Send SMS by double clicking the *wsend.exe* file in the installation directory.
In the Send SMS main window, click **Setup**. The following dialog box appears:

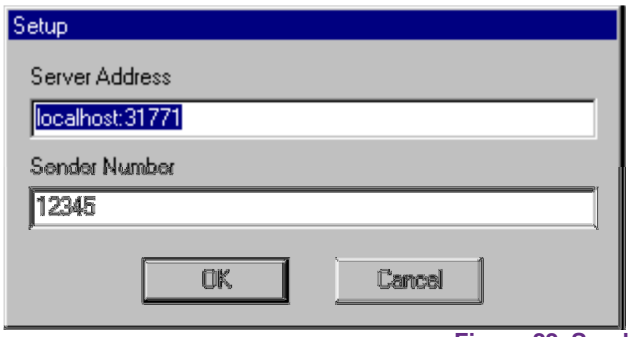


Figure 22. Send SMS Setup

Enter Provider Server's address in the ***Server Address*** field. Enter also the sender's number (your phone number) in the ***Sender Number*** field. Then click **OK**.

NOTE ***If you wish to enter text as the sender number, enter the $ sign and the text, for example, '$COMPANY'.***

Launch the Provider Admin URI and click **All Services**. On the Service list, click **Send**. The following window appears:

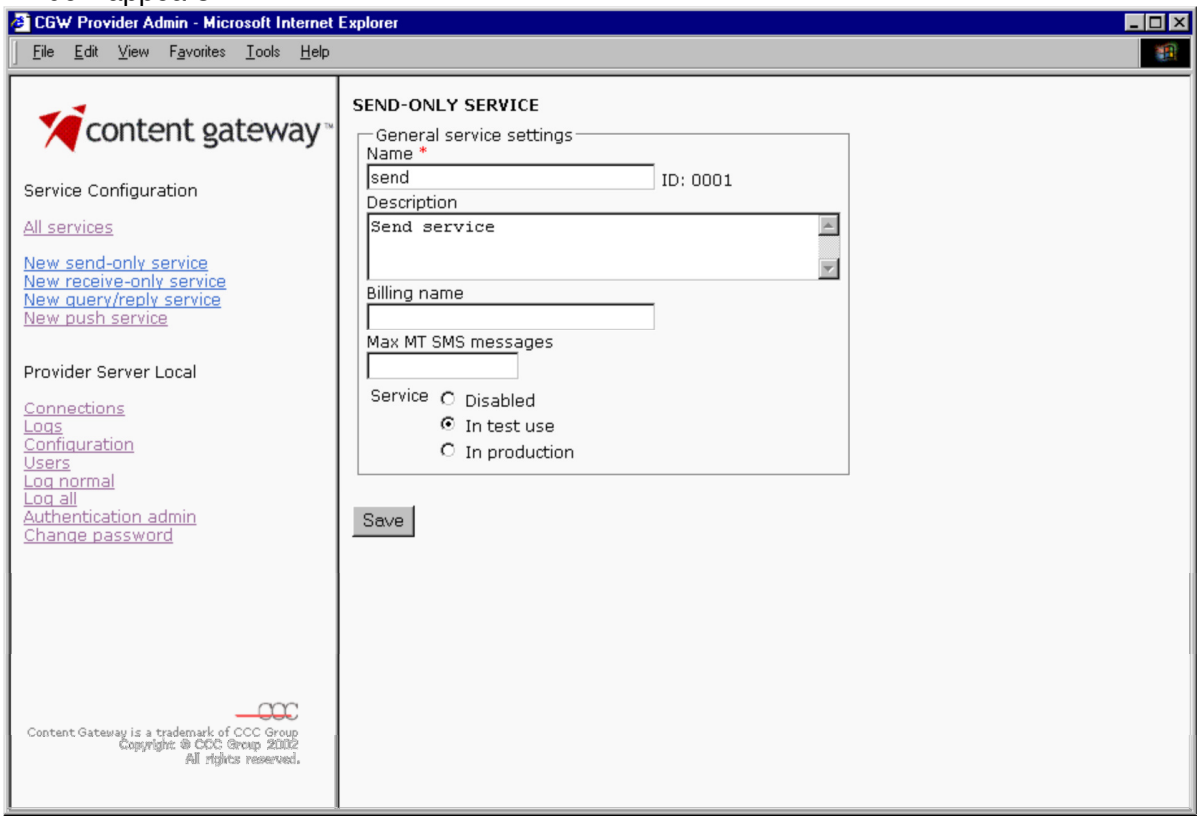


Figure 23. Defining a Send Service

Check that the service settings are correct.

5.3.2 Phonebook

You can use Phonebook to save recipients' names and phone numbers, and to create recipient lists. To open Phonebook, click **Phonebook** in the Send SMS application. The following dialog box appears:

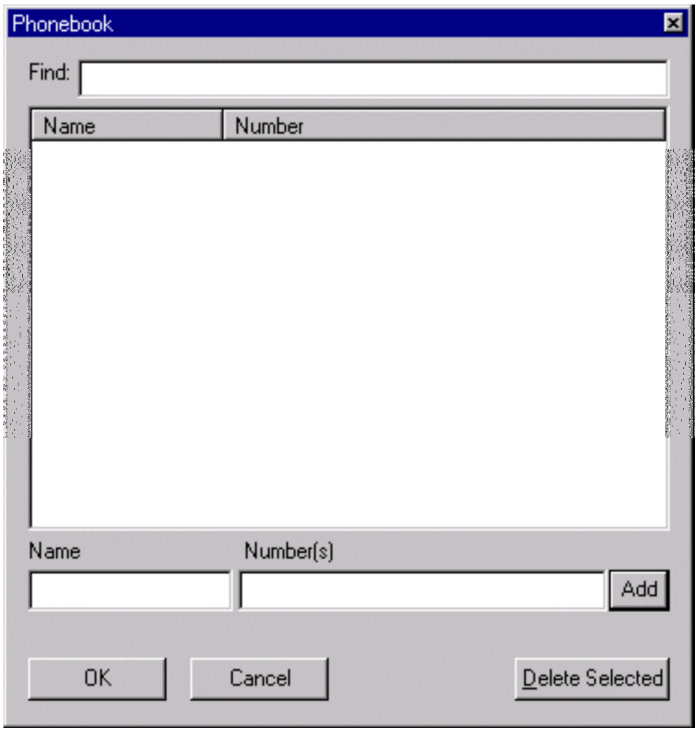


Figure 24. Send SMS Phonebook

The following sections describe the tasks you can do in Phonebook.

5.3.2.1 Creating an Alias

To create an alias for a recipient in Phonebook, enter the recipient's name in the ***Name*** field and the recipient's phone number in the ***Number(s)*** field. Then click **Add**.

5.3.2.2 Creating a Recipient List

To add a recipient list in Phonebook, enter the name of the list in the ***Name*** field and the phone numbers in the ***Number(s)*** field. Insert a comma (,) and a space between the phone numbers. Then click **Add**.

5.3.2.3 Searching for a Phone Number

To find a number on a long list in Phonebook, enter the beginning of the recipient 's name in the ***Find*** field. The matching names are displayed on the list below the field. Select the recipient's name from the list and click **OK**.

5.3.2.4 Modifying Recipient Information

To change a recipient's number or name in Phonebook, select an alias from the list. The name and number appear in the ***Name*** and ***Number(s)*** fields and the **Add** button changes to **Set**. Edit the information and click **Set**.

5.3.2.5 Deleting an Alias or a Recipient List

To delete an alias or recipient list information in Phonebook, select the alias or recipient list from the list and click **Delete Selected**.

5.3.3 Sending SMS Messages

With Send SMS you can send SMS messages from a computer to a mobile terminal. To send a message, do the following:
Start Send SMS. The following dialog box appears:

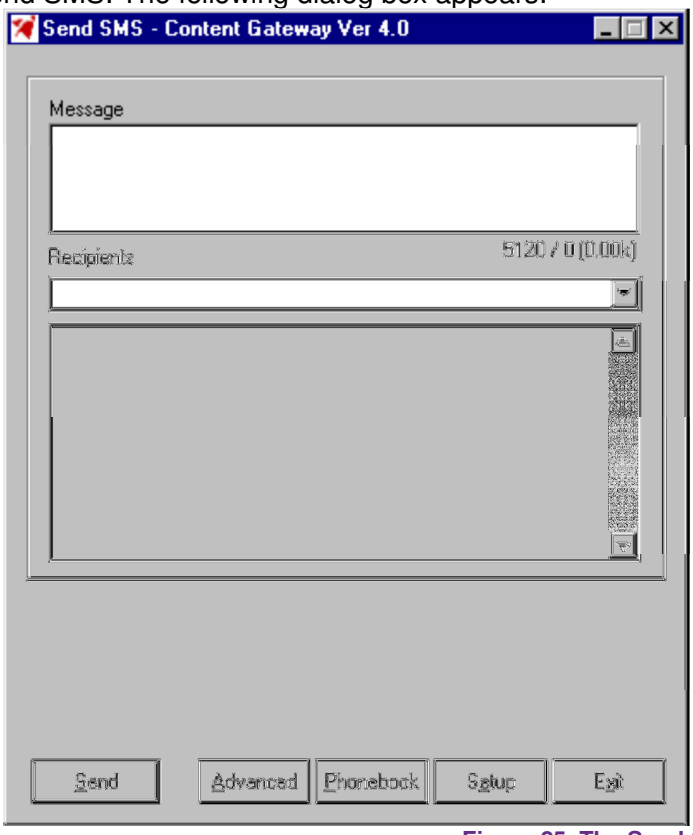


Figure 25. The Send SMS Application

Enter a message in the ***Message*** field. You can write up to 5,120 characters, but keep in mind that one SMS is only 160 characters.
Enter the recipient's alias or phone number, or the recipient list's name in the ***Recipients*** field. If you send the message to several recipients, enter a comma (,) or a semicolon (;) between the aliases, phone numbers or recipient lists.
If you wish to see advanced sending options, click **Advanced**. The following dialog box appears:

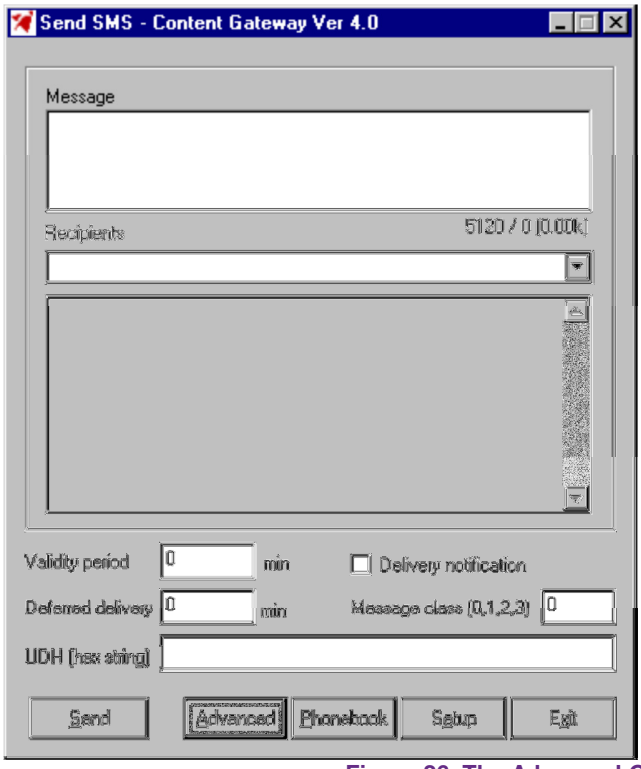


Figure 26. The Advanced Options of Send SMS

Display element	Description
Validity Period	To set the validity period for the message, type the number of minutes to the text field.
Deferred delivery	To set the delivery period for the message, type the number of minutes to the text field.
Delivery Notification	To receive a notification when the message has been delivered to the mobile terminal, select the check box.
Message class	You can define a message class for the message. Please do not use this parameter if you are not familiar with the SMS message class.
UDH (hex string)	You can define a UDH for the message. Please do not use this parameter if you are not familiar with the SMS user data headers.

NOTE ***The SMSC's clock may be on a different time than your system's clock. Make sure your messages do not have a validity period or a***

delivery time set to only a few minutes. Also avoid setting the delivery time later than a few days ahead.

After defining the message, click **Send**. If you did not select the **Delivery Notification** check box, you will receive the following message in the Send SMS's main window:

message sent

recipientnumber: Delivered to the SMSC

If you selected the Delivery Notification check box, you will receive the following message in the Send SMS's main window when the message has been delivered to the recipient:

message sent

recipientnumber: Delivered to the SMSC

recipientnumber: Delivered to MS

If the SMSC cannot deliver the message immediately, the message is buffered for a later delivery. In this case you will receive the following message:

recipientnumber: Stored in SMSC for delivery

TIP *You can use Send SMS for sending SMS messages from workstations to mobile terminals. To install Send SMS in a workstation, copy the wsend.exe file to a directory in the workstation. Configure users and user groups in Provider Admin's User Setup window or create your own phone book in the workstation's Phonebook.*

5.4 Send

Send is a command line version of Send SMS. It is used for sending SMS messages to mobile terminals. Send is installed with both Windows and Unix setups.

5.4.1 Sending SMS Messages

With Send you can send SMS messages from a computer to a mobile terminal. To send a message, go to command prompt and enter the following command on the command line:

send parameters

The parameters are listed in the table below. The parameters in brackets are not required.

Parameter	Value	Definition
-s	Sender number	Your Short Number or other phone number
-r	Recipient number	The recipient's mobile terminal number

[-t]	Timeout	The delivery notification timeout The time (in seconds) that Send waits for a delivery notification.
[-bin | text]	Bin | text	The message content is a binary or text message.
[-h]	Host - Provider Server address	Provider Server's address If Provider Server is installed in another computer, add this parameter to the command.
[-nrq]		The delivery notification request If you wish to receive a notification when a message has been delivered, add this parameter to the command. The notification tells you that a message has been delivered or that it is buffered to wait for a later delivery.
[-vp]	Minutes	The validity period of the message in minutes
[-ddt]	Minutes / DDMMYYYYhhmm	The delivery time of the message Define the time either in minutes from the time the message is sent or in the format DDMMYYYYhhmm. DD = The day with two digits MM = The month with two digits YYYY = The year with four digits hh = The hour with two digits mm = The minutes with two digits For example, if you wish the message to be sent at 12:33 on October 6th 2000, define the time as 061020001233.
[-m]	Message	The message Use -m as the last parameter in the command. Send includes everything after the –m in the message.
[-smart]	Smart messaging port number	The smart messaging destination and originator ports. Remember to use the bin parameter if the content is a binary message.

[-udh]	UDH in hex	The User Data Header information in hexadecimal format To find out more about the UDH parameter, see the Nokia Smart Messaging documentation. Do not use this parameter if you do not know how it affects the mobile terminal's functions.
[-c]	Class number	The message class Defines where the received message is stored in the mobile terminal. The classes are as follows: 0 = Displays the message (flash) like a cell broadcast, but does not store the message 1 = Mobile terminal specific 2 = The message is stored on the SIM card. 3 = Terminal equipment specific Do not add this parameter to the command if you do not know how the mobile terminal functions with this parameter.
[-f]	Filename	The name of the file that contains the message The message is sent from the file specified in the parameter. If you omit the –m or –f parameters from the command, Send sends the text from the console as the message.
[-hex]	Message in hex	The message content in hexadesimal format. For example: -hex 98FAE4E412BC

NOTE ***The SMSC's clock may be on a different time than your system's clock. Make sure your messages do not have a validity period or a delivery time set to only a few minutes. Also avoid setting the delivery time later than a few days ahead.***

Examples of messages sent with send:

send –s 0401235 –r 0401234 –m Hello!

date | send –s 0401235 –r 0401234 –h cgw.company.com

send –s 0401235 –r 0401234 –h cgw.company.com –m Hello!

send –s 0401235 –r 0401234 –h cgw.company.com –f msg.txt

5.5 Numbergame

The Numbergame application is used for testing the live connection between Provider Server, Operator Server and the operator's messaging center. Its source code is provided with the API library.
To compile the Numbergame application on UNIX platform type the following to the UNIX terminal in the directory where the API and the numbergame.cpp is.

g++ numbergame.cpp -o numbergame cgwapi.a -lsocket -lnsl -I.

The g++ compiler should be at least version 3.3.1.

Numbergame draws a number between 0 and 10. You have to guess the number by sending your guess to Numbergame. Numbergame then sends you a reply telling you whether your guess was correct or not. Numbergame uses the default port 3333, but the port can be changed by giving it as a parameter from the command line.

An example: *c:\>Program Files\cgw\numbergame.exe 4545*

5.5.1 Configuration

The Windows setup program installs Numbergame with Provider Server. To configure Numbergame, do the following:
Open Provider Admin and click **All Services**. Select *numbergame* from the list. The following window appears:

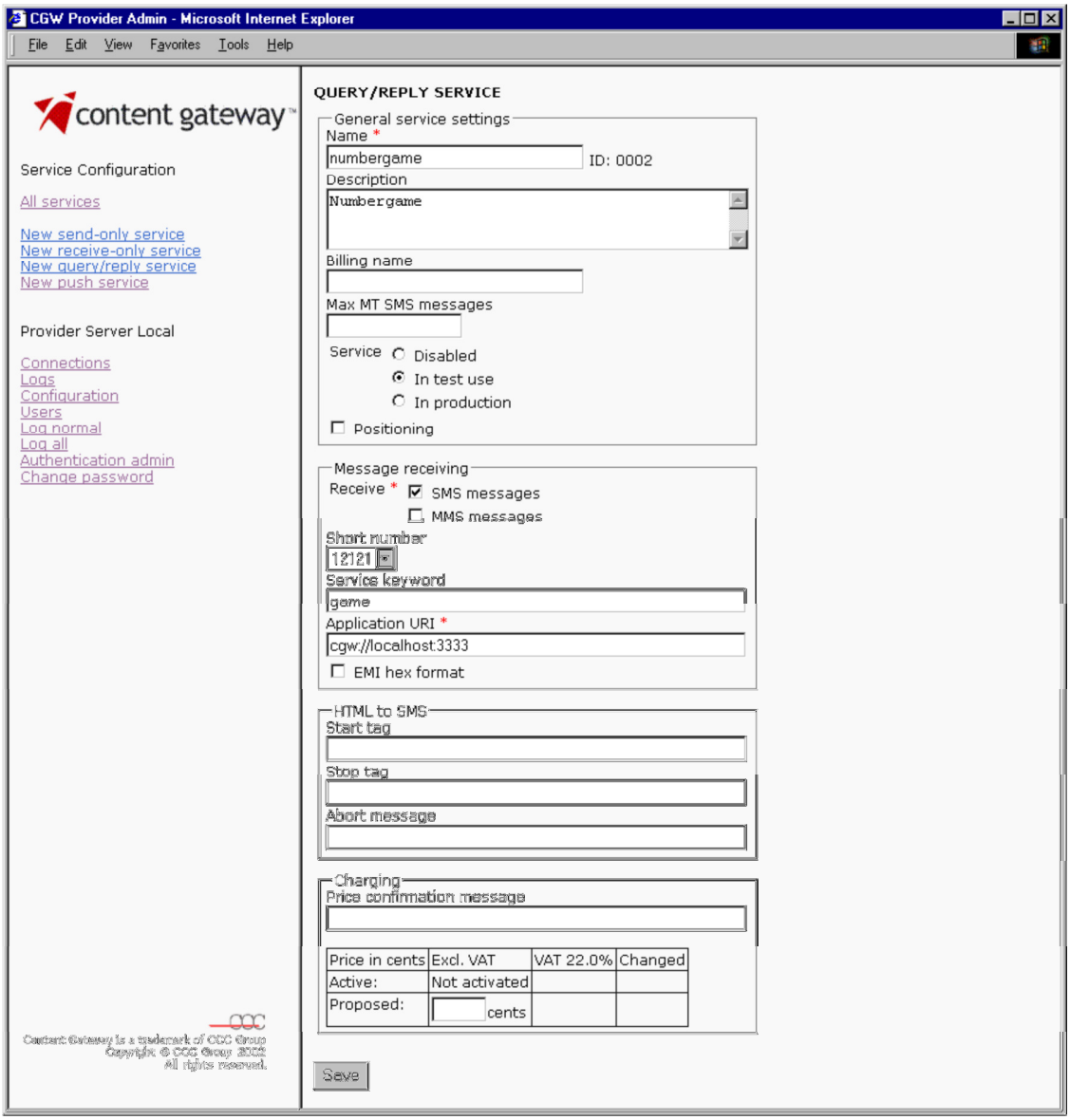


Figure 27. Defining a Numbergame Service

Check that the service settings are correct.

5.6 SMTP Gateway Functionality

SMTP Gateway functionality is designed for 100–1,000 users. The maximum number of users depends on your e-mail connection's speed, on the SMTP Gateway server's speed, and on the number of simultaneous

users. To find out if you can use the SMTP Gateway for your purposes, contact your Content Gateway operator.
Your e-mail system needs to be able to route the incoming messages to the SMTP Gateway server, so you have to define rules in your e-mail system to route the messages to SMTP Gateway at Provider Server. You cannot configure Provider Server to accept incoming connections from an e-mail system (the smtp-port parameter) in a machine that has another SMTP server program running. For example, Sendmail is an SMTP server.

5.6.1 Configuration

The Content Gateway e-mail connectivity via Provider Server is configured with service and port settings.

Parameter	Default value	Description
smtp-address		The Provider Server address when it functions as SMTP Gateway. For e-mail recipients this is the sender's address when they receive a message sent from a mobile terminal. An example: smtp-addess sms.company.com
smtp-address-required		With the value "yes", Provider Server checks that messages received from the e-mail system have a correct domain set as the recipient address. Otherwise, any recipient is accepted. An example: smtp-address-required yes
smtp-sender-number		The mobile recipient sees this as the sender's phone number when the message comes via an SMTP connection. An example: smtp-sender-number 12345
smtp-max-sms	1	A maximum of how many SMS messages are created from the message received from e-mail. An example: smtp-max-sms 5
smtp-errors-to		The SMTP server address where to send e-mail to the original sender about undelivered SMS messages. An example: smtp-errors-to smtp://smtp.company.com

smtp-subject		The subject of the e-mail received from a mobile terminal. You can use the same replacement variables as in the service URI definition. An example: smtp-subject Message from phone number $(M)

NOTE ***Remember to restart Provider Server.***

5.6.1.1 Configuring SMTP Gateway for Messages Received from a Mobile Phone

To configure SMTP Gateway to route messages from a phone to e-mail, open Provider Admin and click **All Services**. In the Service Setup window, select smtp from the list. The following window appears:

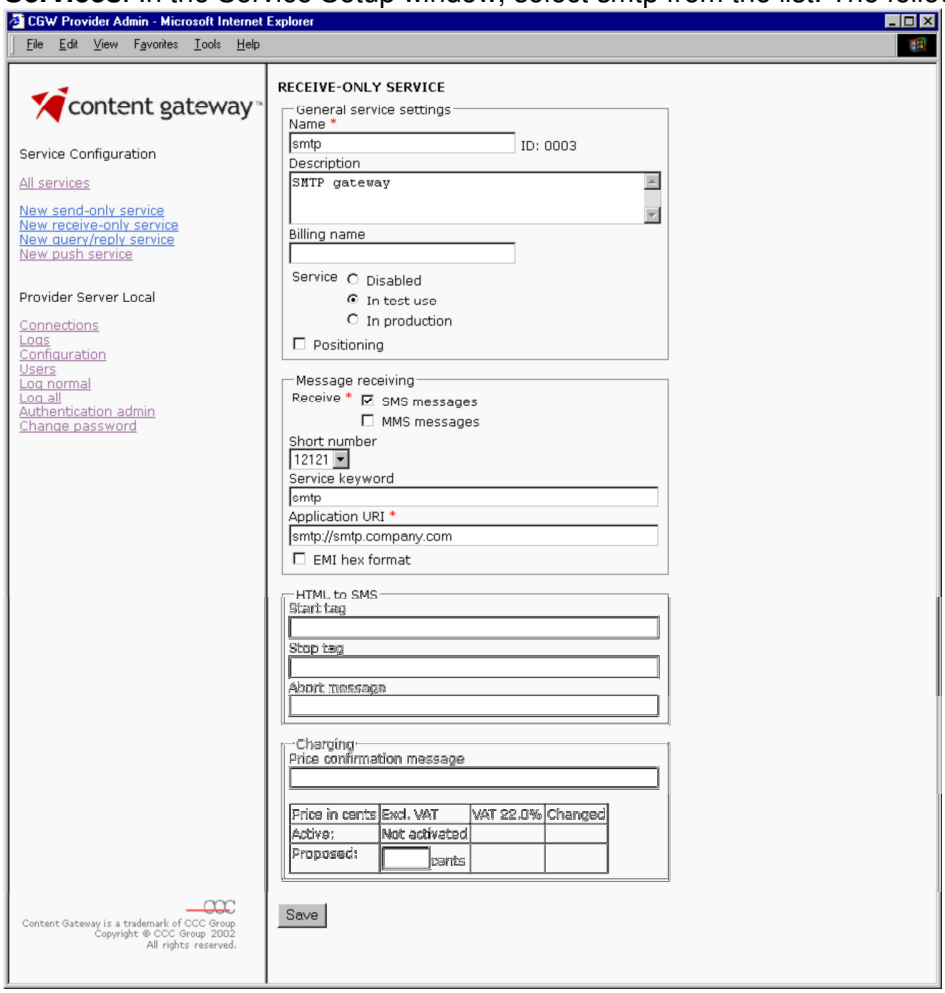


Figure 28. Defining an SMTP Gateway Service

Check that the service settings are correct.

NOTE ***Check especially the Application URI. The default server address "smtp.company.com" is very likely incorrect. If Provider Server accepts SMTP connections from e-mail systems (smtp-port is defined), the invalid configuration may cause problems for all SMS traffic.***

5.6.1.2 Configuring Your E-mail System

Before you can start using SMTP Gateway, you have to configure your e-mail system. To configure your e-mail system, do the following:

Check that your e-mail server (for example, Exchange, Notes or Sendmail) routes the messages to the correct address, i.e. to the SMTP Gateway server.
Check that users are able to send e-mail messages from your e-mail system to SMTP Gateway.
Check that the connection to the SMTP Gateway server is closed to users from outside your company. Outsiders should not be able to send e-mail messages through the SMTP Gateway server.

5.6.1.3 Sending Messages from an E-mail Client

With SMTP Gateway, you can send a message from your e-mail application to a mobile terminal.
To send a message from an e-mail application to a mobile terminal, do the following:
Send an e-mail message to the following address:

mobilephonenumber@smtpgwaddress

An example

From: alex@company.fi

SMS message from email

This is an SMS message sent from an email application.

With regards,

Alex

If the message is longer than 160 characters, SMTP Gateway truncates the message.

5.6.1.4 Sending Messages from a Mobile Terminal

With SMTP Gateway, you can also send an SMS message from a mobile terminal to an e-mail application.
To send a message to an e-mail application, do the following:
Send the following SMS message from your mobile terminal to the Short Number:

keyword recipientaddress message

An example

s alex@company.fi I received your message. Thank you!

The recipient receives the message as an e-mail message. The message contains the sender's SMTP Gateway address (mobilestationnumber@smtpgwaddress), the recipient's e-mail address, the subject and the message. SMTP Gateway generates the subject automatically.
An example

From: 0101234567@sms.company.com

To: alex@company.fi

Subject: SMS Message from 0101234567

I received your message. Thank you!

5.7 ODBC Gateway

ODBC Gateway is used for making database queries from a mobile terminal. The database query is made with an SQL statement. You can add various parameters to the SMS message to define the query.
ODBC Gateway is meant for a small number of users. The exact number of users depends on the time it takes to make a database query. The database application's performance depends mostly on the ODBC driver used with the application.

5.7.1 Configuration

The Windows setup program installs ODBC Gateway with Provider Server. To configure ODBC Gateway, do the following:
Install an ODBC driver for the database application. To find out more about the installation of available ODBC drivers, see the manufacturer's and Microsoft's web sites or contact your database application's supplier.
Create the links to the database application before you create a query using that database. ODBC Gateway does not create the ODBC DSN data.
Open Provider Admin and click **All Services**. Select *odbc* from the list and the following window appears:

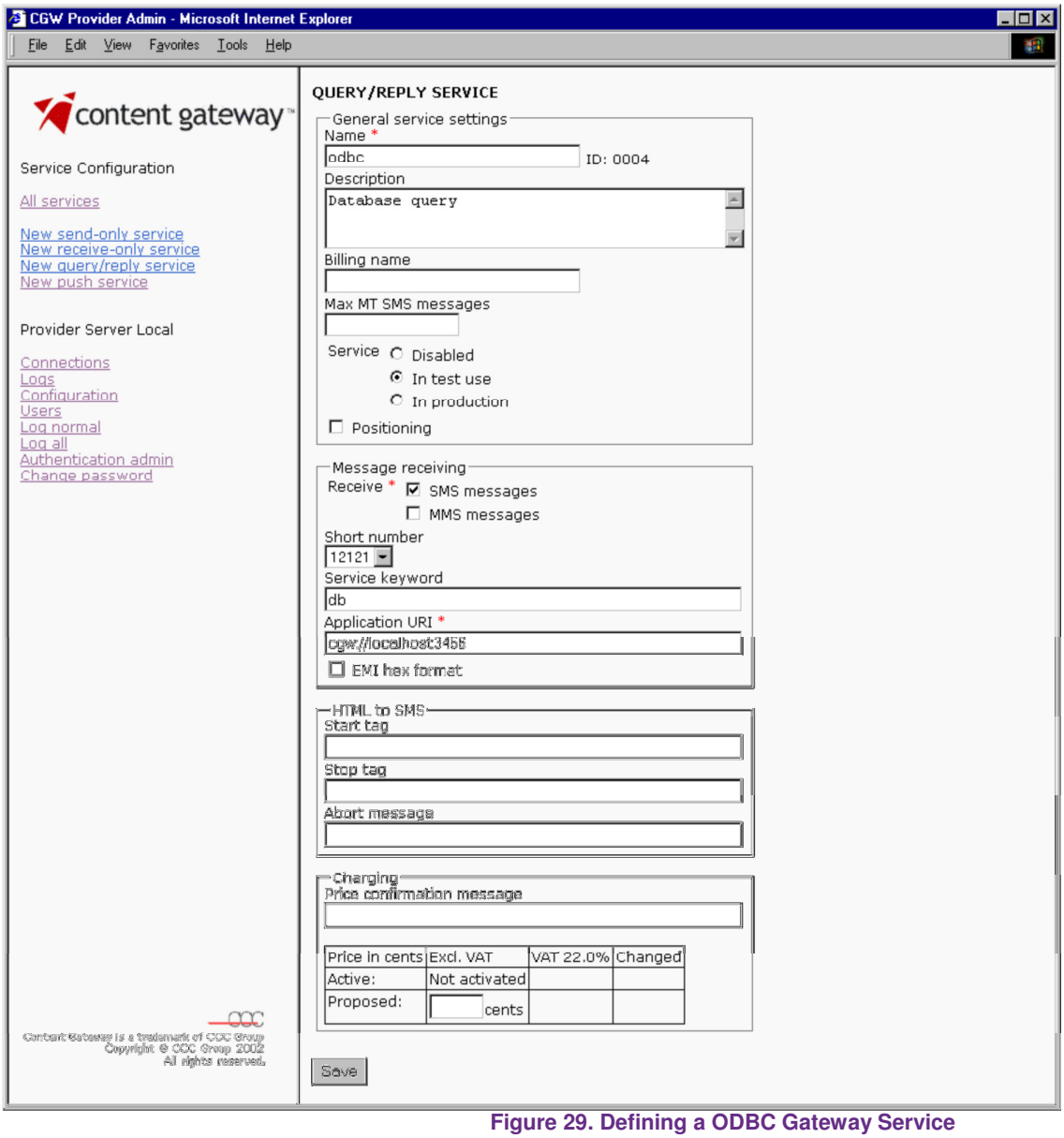


Figure 29. Defining a ODBC Gateway Service

Check that the service settings are correct.

5.7.1.1 Creating Database Queries

Before you can make a database query from a mobile terminal, you must create the query in ODBC Gateway. To create a database query, do the following:

Start ODBC Gateway by selecting ***Start –> Programs –> Content Gateway –> ODBC Gateway***. You can also start ODBC Gateway by double clicking the *odbcgw.exe* file in the installation directory. The following dialog box appears:

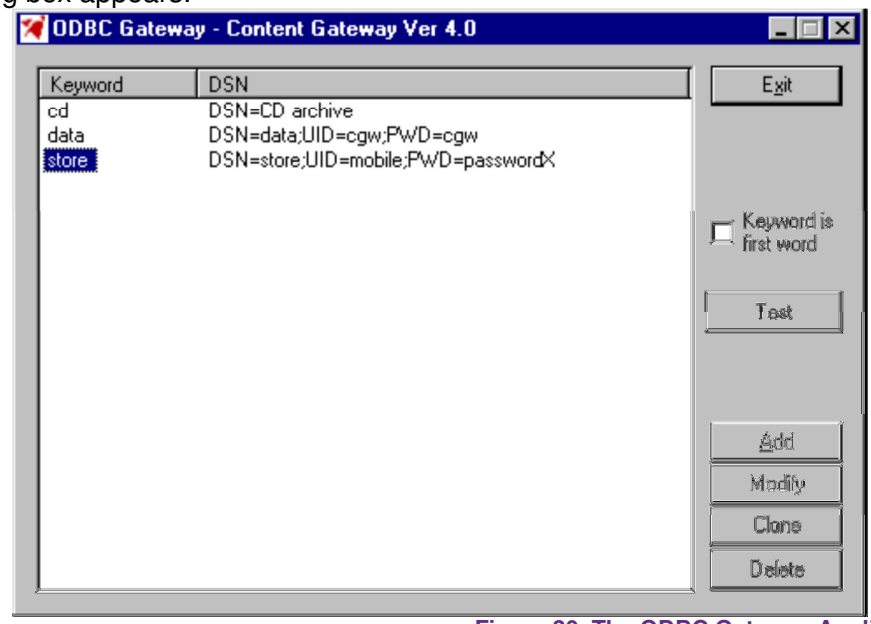


Figure 30. The ODBC Gateway Application

If you have not defined a keyword for ODBC Gateway in Provider Admin, select the ***Keyword is first word*** check box. ODBC Gateway then identifies the database query from the SMS message's first word. If you have defined a keyword for ODBC Gateway in Provider Admin, do not select the box. ODBC Gateway then identifies the database query from the SMS message's second word. In this example odbc service has a keyword defined, and therefore, the ***Keyword is first word*** check box is not selected.
To copy the data from an existing database query to a new query, select the keyword of an existing query from the list, and click **Clone**. ODBC Gateway copies all data except the keyword.
To add a new database query, click **Add**. The following dialog box appears:

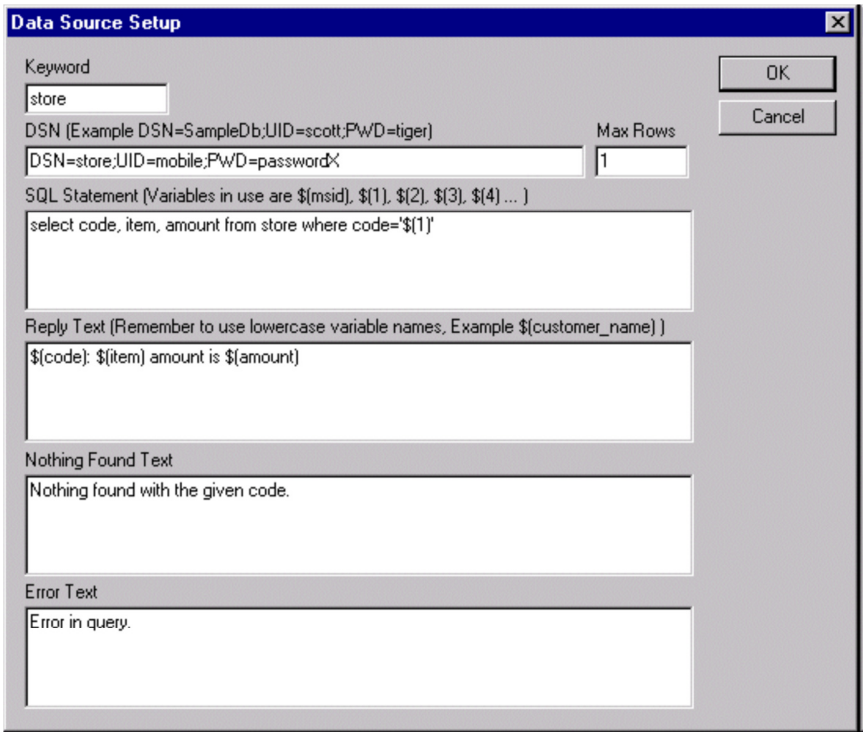


Figure 31. Defining Data Source Setup for an ODBC Query

Define the parameters for the database query.
The following table explains the parameters that you can use when you create a database query.

Parameter	Definition
Keyword	The identifier of a database query
DSN	ODBC DSN Also define the user ID and password. If you do not define the user ID and password, the database application shows the user ID/password dialog box when a message arrives.
Max Rows	The maximum number of rows sent from the database.
SQL Statement	The SQL statement with which ODBC Gateway reads the database. You can use the following variables: $(msid) = The sender's mobile terminal number (0101234567) $(number) = The number of the variable word in the message. ODBC Gateway replaces the variables with the text in the reply message.

Reply Text	The text ODBC Gateway sends as an answer to a query. You can use the SQL statement's variables in the text. Use only lowercase variable names.
Nothing Found Text	The message ODBC Gateway sends as an answer to a query if the parameters in the SMS message are incorrect.
Error Text	The message ODBC Gateway sends as an answer to a query if an error occurs in the database query.

5.7.1.2 Modifying Database Queries

To modify a database query, select the database query keyword from the list in the main window of ODBC Gateway and click **Modify**. Change the information you wish and click **OK** to save the changes.

5.7.1.3 Deleting Database Queries

To delete a database query, select the database query keyword from the list in the main window of ODBC Gateway and click **Delete**.

5.7.1.4 Making Database Queries

The following example shows you how to make a database query from a mobile terminal.
An example of a database query
Send the following SMS message from your mobile terminal to the Short Number:

db store abc12

'db' is the odbc service keyword and 'store' is the database query keyword.
If the odbc service is configured without a keyword, you will get the same result by sending the following SMS message from the mobile terminal to the Short Number:

store abc12

ODBC Gateway creates an SQL statement from the message.
Select code, item, amount from store where code = 'abc12'
ODBC Gateway makes the query from the database. The return values are the following:

code = abc12

item = thingie

amount = 128

ODBC Gateway converts the return values to the following reply text and sends the reply to your mobile terminal:

Abc12: thingie amount is 128

If the answer to a query consists of more than one row, ODBC Gateway creates a separate reply text from each row. ODBC Gateway then creates an SMS message from all the rows and sends the message to the sender of the query. If the length of the SMS message is over 160 characters, ODBC Gateway automatically truncates the message.

6 Positioning support

Mobile location services are value-added services that use the user's position. The system requests the position of the mobile terminal and adds the latitude and longitude information to the message that is delivered to Provider Server and further to the application.

NOTE ***The content/service provider must make an agreement with the operator in order to receive position information.***

The positioning support is service-based. In the same short number you can have services that use location information and services that do not. When the mobile user is positioned, the MSISDN is replaced with a position ID. Note that the position ID is about 40 characters long, much longer than the MSISDN. The content/service provider must make sure that your data structures are capable of handling these long sender numbers.
The positioning utilizes the cell-id technology where the position of the mobile user is located on the cell level. The accuracy depends on the cell size and on the network operator's coverage. It can be approximately 200-2,000 meters in cities and more in the countryside.

The message from a positioned user contains the following information:

1) The latitude
2) The longitude
3) An estimate of the positioning error in meters
4) The MSISDN is removed and replaced with the position ID
5) The name of the city
6) The city code
7) The zip code at the position

The position information is supported only with the HTTP and OTP protocols and with the Java and C++ APIs. See the documents *Protocols, JavaGuide* and *C++Guide* for more information.
You should implement your service as Query/Reply. The reason is that you must use the position ID in your reply, which is recognized only within the same session. You cannot use positioning in the Receive Only service and reply with the Send Only service.

NOTE ***The message is not delivered to Provider Server at all if positioning fails. In this case the mobile user receives an error message.***